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I.—*Second Report of Progress made in the Examination of the* Mackenzie MSS., *with an Abstract Account of the Works examined.—By the Rev.* William Taylor, *Member of the Madras Literary Society, &c.*

To the Secretary to the Asiatic Department, Madras Lit. Soc. and Auxiliary Royal Asiatic Society.

Sir,—I have now the pleasure to transmit to you, for the information of the Committee of Papers of the Madras Literary Society, and Auxiliary Royal Asiatic Society, my Second Report of Progress in the examination, restoring, and abstracting, of the Mackenzie Manuscripts.

It will be observed that a few of the MSS. herein adverted to needed no restoration; one or two others only partially required it, on new palm-leaves; while several documents, have been entirely re-copied.

The inscriptions, it will be seen, have occupied part of my attention. I could wish the results had been of greater consequence, in proportion to the labour demanded. But from a glance beforehand, I expect more interesting conclusions, from other records of the same class.

Corresponding with this Section, of my general report, is a second volume of restored documents, similar to the first volume, heretofore transmitted to you: so soon as this second volume can be bound, it also shall be forwarded.

I have the honour to be, Sir,
Your most obedient servant,

Madras, *Jan.* 15, 1838. W. Taylor.

A :—TAMIL.

a. Palm-leaf Manuscripts.

I—*Chola purva Patayam,* or ancient *Chola* record.

No. 165.—Countermark 64.

This is a large Tamil Manuscript, containing 48 palm-leaves in the introductory portion, and 219 in the remainder. It is perfect as regards the numbering of the leaves; and is generally in good state of preservation: a few of the leaves are a little damaged; but these, having been restored, the whole will last in good preservation, for several years.

Brief Abstract.

Reference to inscriptions at Conjeveram, and to *Vicramaditya,* the son of *Govinda,* slain by *Salivahana.* It states that *Salivahana* was born in the country of *Ayodhya,* in a potter's house, under the influence of *Athi-seshan.* He acquired great skill and prowess; and, conquering *Vicramaditya,* subdued also the *Ayodhya** country. An era was formed termed the era of *Salivahana.* In his time there was great disorder. *Hindu* fanes, rites and institutions, all were neglected. *Salivahana* was a *Samana* (or *Jaina*) a worshipper of *Sarvesvarer*—of a venemous spirit—and in these he gloried. He destroyed the fanes, and sacred edifices, of the *Hindus* of five classes, without favour or distinction: he overthrew all privileges which *Hindus* derived from *Vicramaditya.* He persecuted and oppressed all who would not enter into the *Samana* religion, of which he was a devotee. If they entered the way of *Sarvesvarer,* he protected them; but punished them if they refused. Through his wickedness there was no rain—a great famine—much distress, and one house distant ten miles from any other house; the country little better than a waste benighted wilderness. The ascetics, retiring to wildernesses, in secret made murmuring complaints to *Siva,* and *Vishnu.* *Siva* to avenge the desolation, solicited from the *Athi-Parabaram* (Supreme Being) a fire rain. *Athi-seshan* beforehand apprized *Salivahana* of its approach, in a dream. *Salivahana* announced to all the followers of *Sarvesvarer,* the coming fire-rain, and recommended them to build stone-houses, or to remain (on the day fixed) in rivers; by both of which means they would be preserved uninjured by the fire-rain. They followed his advice; some quarrying stones and building houses; others watching on the banks of the largest rivers;

* Whence it appears either that the author made a mistake or else that there was a second *Ayodhya.* *Vicramaditya* ruled over Gujerat and Malwa, and derived tribute extensively from other countries. *Ayodhya* may however be viewed as an epithet, "exempt from war."

and they were all on the alert. *Siva,* opening his frontlet eye, sent a rain of fire. *Salivahana's* people took refuge in their stone-houses, and he himself with his army on the banks of the *Caveri* (here used to designate a river in general) avoided it by plunging in the water. *Siva* seeing this, by recourse had to the Supreme Being, and by meditating on the five lettered *mantra,* sent down a shower of mud. Those in stone houses were thereby blocked up and suffocated; those in rivers came out and escaped, and thus *Salivahana,* (here also termed *Bhoja*) with his army, escaped. *Siva* now took counsel within himself. The first reflection produced *Vira-cholan* (the thought of him was born in his mind): the second reflection produced *Ula-cheran* of the *Lada* country, and the *Nanda Gopala Yediar* (or herdsmen) class or tribe ; the third reflection produced *Vajranga Pandyan* of the fisherman's class. *Siva* then, with regard to *Vishnu,* meditated the eight-lettered *mantra ;* and through it designated these three to their respective offices ; it being the special lot of the *Cholan* to kill *Salivahana.* The three kings came together to take counsel, so that the three crowns became as one crown, and they bathed together in the river at *Tirumúkudal.** After making a vow to destroy *Salivahana,* and taking means to assemble money and troops, they made a pilgrimage to *Casi.* At that time *Casi* was neglected, and it was merely a wilderness of banyan trees. They are represented as discovering an inscription deep hidden in the earth, stating this to be *Casi,* &c. (Hence it is not *Benares,* but some fictitious *Casi,* that is designated). They subsequently came to *Canchi-nagara* (Conjeveram). The same process as before is represented to have been repeated. Here also an inscription was found. (It is to be noted that the original name is *Cachi : Canchi* being a modern addition) they were referred for further information to *Cachi Vira Camachi-rayen,* of the weaver tribe. They cleared the forest; but were opposed by a local *Durga* who threatened to sacrifice them for trespassing on her domains. There follow various details needless to be minutely stated. *Salivahana* is again designated simply by the name *Bhoja.* The aforesaid *Cachi Vira Camachi* appears as a negociator with the local *Durga,* and promises her one thousand and eight human sacrifices, from among the people of his tribe, and the title of " War goddess ;" so that when the tribe should rule and fight with other kings, her

* This is a place where three rivers became one, said to be not far from Conjeveram : Hence the name, implying, " the sacred triple-union." Another such place is celebrated in a book called *Mukudal pallu* and is said to be near *Alagar-Covil,* in the neighbourhood of Madura.

appetite for human blood should be abundantly satiated : with these terms the *Durga* was satisfied, and gave consent to the building of a town, and establishing a monarchy. (If this be ornament it is still startling in its indications as to by-gone days). She then took him to the tank of her local residence, and explained to him that after *Vicramaditya's* defeat, by *Salivahana*, all the former inhabitants of the place had collected their jewels and other valuables, which were put into a copper chest, and that this chest was buried, deep under the bed of a tank (reservoir), in a cave closed by a door, which was locked, and over it the stone bed of the tank was relaid. She pointed out to him the spot, and put him in possession of the chest. She also directed to another spot where ancient records of the place, when the country was ruled by *Devendra*, were deposited; and shewing him where it was she disappeared. *Cachi Viran* returned to a locality where the three kings were waiting for him. There follows some more fable; and then an order from *Siva* in the form of a *guru*, to open the chest. A detail of its contents—a smaller chest—a weapon—a sacred utensil—another weapon—a brass vessel—a key of the inferior regions—five other keys—an iron crow-bar—a hammer—ten thousand pieces of gold coined in the age of the great king *Santanu*. The smaller chest being opened contained images of *Ganesa*, *Carticeya*, *Valiyamma* (the female image at Chillambrum) a *trinetra* fruit (the sacred ashes of the *Saivas*) a sacred bead containing the image of one god (usually it is held to contain three, four or five—the kind mentioned is very rare). A *chank* with its windings to the right (extremely rare and precious) a cane without joints or knots, a row of beads for prayer, a seal-ring of six classes of *Hindus*—these and the like were in the inner box. These were given to the *Saiva-guru* to be purified, and then were committed to the care of *Vira Camachi* for the purposes of worship. He fetched a pot of water from the *Cambha* river, and putting it before the chest, placed one of the weapons upright in the ground; and, paying homage, transferred the divinity resident within the chest into the pot of water, which was daily worshipped by himself and his wife. This was all done by instructions from the god, in the shape of a *Saiva-guru*. He delivered the same over to his son to be so handed down from generation to generation. The said *guru* further told them to make use of the key of the inferior regions, in the place before indicated by the local *durga*, where a copper plate inscription would be found. The *Saiva-guru* then disappeared, resuming his divine form of *Yecambaresvarer*. The three kings were again resorted to, when the original inscription first mentioned was once

more read by them all, and again hidden. After some other matters, the opening of the other cave is mentioned, to which the instruments before found in the first box were necessary. This was a cave, which was entered by the light of large torches, and thence another box was taken. The inscription on copper-plates and its contents are stated to have referred to the four ages, with the record of some leading names, and coming down to the mention of *Vicramaditya's* defeat by *Salivahana;* at which era it would appear to have been engraved, and its contents are said to have contained extensive details, (certainly ill suiting a copper-plate record, but there is much of exaggeration apparent) : the simple object of the inscription would seem to have been to commemorate the previous prevalence of the *Hindu* faith, that the memory might not be lost, during the greatly altered state of things under *Salivahana.* The three kings rendered great honour to *Vira Camachi* and to his son. There is a brief repetition of matters, connected with the four ages, for the purpose of shewing apparently that all the great events recorded were preceded by the exhibition of human sacrifices, and it was again agreed upon by the three kings that before setting out to conquer *Salivahana,* a similar sacrifice must be offered at a place termed *Cudutturi.* The contents of the inscription, as regards the list of kings in foregoing ages, was copied out on palm-leaves, and then the copper-plates were returned to the place whence they had been taken. The three kings again went to *Casi.* Thence they derived three crores of money, said to be dug up from beneath the shrine of a goddess—a variety of fabulous accompaniments. Nine persons in all are represented as having visited *Casi,* and as subsequently returning to *Conjeveram.* The affair of destroying *Salivahana* was now entered on ; and the three kings leaving Conjeveram proceeded to *Cudatturiyur.* Being there, *Vira Cholan* wrote letters missive addressed to the votaries of *Siva,* and *Vishnu,* whether in cultivated lands or wastes, always excepting the *Samana* followers of *Sarvesvarer,* the purport being a call to assemble at *Cudatturiyur* in order to proceed against *Salivahana.* A great concourse assembled.

Salivahana heard of these preparations. (Here the Manuscript takes a retrospect in a few lines, and the passage is important). In former days *Vicramaditya* ruled in the country of *Ayodhya,* and built a large town with battlements, and other fortifications. When *Salivahana Bhoja* conquered *Vicramaditya* as he was not fit to rule in that town, he constructed another town in the same country, called *Bhoja-raya-puram,* where the descendants of this *Salivahana Bhoja*

ruled during 1442 years.* In their time, the three kings aforementioned made their preparations which (the descendant of) *Salivahana* learning, consulted about some place of refuge, and hearing of Trichinopoly, enquired concerning its origin and antiquity. This statement introduces the ordinary legend about that place, founded on circumstances connected with the poem of the *Ramayana.* Assembling all his forces *Salivhana* set out with them from *Bhoja raya-pur,* and overran the whole of the Peninsula, until he came to Trichinopoly; of which he took possession. Ascending the rock, and perceiving the strength of the place, he considered that no one could dispossess him of it, if he made it his citadel; which greatly added to his confidence. Residing in a palace at the foot, he thence administered the affairs of the kingdom. Meantime the three kings continued their preparations at *Cudatturiyur. Cachi Viran* advised to send an envoy to hear what *Salivahana,* would say, and then to levy war against him. The *Cholan* accordingly sent *Cachi Viran* himself, accompanied by some troops. At an interview with *Salivahana* in Trichinopoly he recited the preparations made with the express intention of destroying the power of that ruler, demanding in consequence that he should give up Trichinopoly, renounce the *Samana* way, bathe his head in the *Caveri* (become a *Hindu*), retire to his own proper town of *Bhoja-raya-pur,* and there maintain only half his present army. *Salivahana* much incensed, with abusive epithets, rejected the demand; but added a challenge if they thought themselves strong. *Cachi Viran* returned to *Cudatturiyur;* and, his opinion being asked, he advised a second embassy before making war. *Cachi Viran* was again sent. An appointed time and place of combat were now fixed; *Salivahana* engaging to come with his forces to the place. This place was *Tiru-vani-kaval,* whither the three kings, *Cachi Viran,* his son, and an army repaired as appointed. There *Vira Cholan* was crowned, and invested with royal

* Thus, in the sense of this author, *Salivahana* stands both for an individual and for a dynasty, of which he was the head; according to a custom of other oriental, and even Scriptural writers, as has been fully shewn by Bp. Newton in his Dissertations on the Prophecies. The tales about *Vicramaditya* make *Bhoja raja* his successor, after some interval, in a different town, and on another throne. If the *Carnataka rajakal* can be safely followed, the town and fortress of *Salivahana* was at the modern Dowlutabad, a truly singular place, according to the description given of it by Captain Seely, while the neighbouring sculptures at Ellore (prevailingly *Jaina* in fashion) sanction the idea of a great power in the neighbourhood. At that place *Deva-giri* (or Dowlutabad) a long list of kings did reign down to *Rama dera* (or *Ram-deo*) conquered by the Mahomedans, when the place was plundered and the kingdom subjugated. Hence I think we have some important indications, to be followed out in fuller conclusions.

insignia, by *Cachi Viran*. Thence they proceeded to besiege Trichinopoly. *Cachi Viran* by means of the copper inscription at *Conjeveram*, before mentioned, knew that by the craft of *Vibushana* (younger brother of *Ravana*) there was a subterraneous entry into the fort of Trichinopoly. This was passed by a few people with torches, who thence proceeded to open the *Chintamani* gate, by which the troops entered in multitudes; and destroyed *Salivahana*, together with his *Samana* troops, with great effusion of blood. A pariar named *Vellan* escaped on *Salivahana's* horse; and with him a hundred others with their families, escaped, and went to the sea shore, whence he proceeded to some island, so as to leave behind the proverbial saying " *Vallan* went to the river." The destruction of *Saliváhana* is dated in C : Y : 1443 (in writing at full). The three kings celebrated their conquest. *Vira Chola* had to get rid of the crime of killing *Saliváhana* styled *Sarpa-dosha-Brahmahatti* (that is a degree of sacredness adhering to *Saliváhana*, as born under the influence of *Athi-seshan*, assimilating the crime to the evil of *Brahman*-slaughter, though not the same). In consequence of this crime he became infatuated, and fell sword in hand on his own troops, who on all sides ran away to avoid him, besides which he sloughed his skin, in the same way as a serpent changes his skin, annually. His companions seeing these things consulted together; and in consequence *Cachi Viran* gave instructions to his wife *Camachi* to assume the guise and appearance of a *Curava* woman, of the description practising palmistry. She accordingly came into the town in that guise, when the three confederates had her called, and first submitting their own palms, brought *Vira Cholan* to submit to the like process. The fortune teller said, that he had killed *Saliváhana* of such and such a race, and must expiate the crime by building a great number of fanes to *Siva*, to *Vishnu*, to *Subrahmanya*, dwellings for ascetics, and dwellings for *Brahmans*; and to enforce the duty a long narration is given of distinguished personages, in former ages, who had expiated like crimes, by building an immense number of such structures. At the mere hearing of the duty, *Vira Cholan* found his malady alleviated; and the doing accordingly was determined upon. The *Curatti* (or fortune teller) went away and resumed her proper form as *Cámáchi*. The kings inspected the fortification of Trichinopoly, which they found only fit for a *racshasa*; but extended it so as to be fit for a regular *Hindu*-sovereign. They then returned to Conjeveram, where by their desire *Cachi Viran*, read to them the writings on palm-leaves, his copy of the before mentioned copper-plate inscriptions; and, according to the appointment therein stated by *Rama*, the division of castes and tribes was

restored. A great number of sacred edifices, of the five kinds, were built. The three kings then separated to their respective dominions. From *Ularacheran* there were twenty-six kings down to *Chengara-natha-cheran.* From *Vajranga* there were twenty-six *Pandiyans* down to *Choka-natha.* From *Vira Cholan* down to *Uttama Cholan* there were twenty-five *Cholans.* The son of *Uttama Cholan* was *Uriyur-Cholan ;* with the account of whom a new section is made to begin.

The ancient record of the time of *Cari Cala Cholan.*

After the death of *Uttama Cholan* the crown devolved on *Uriyur Cholan* in the year of the *Cali-yuga* 3535. This was corresponding with the death of *Choka-natha-pandiyan,* of the southern Madura. The son of this last, *Minatchi Savuntira Pandiyan,* was crowned C : Y : 3537. In the *Conga Dharapuram,* the death of *Chankara Natha Cheran* was contemporaneous. His son named *Cheruman Perumal* was crowned C : Y : 3538. In the town of *Canchi* (Conjeveram) *Lacshamaiya Muthaliar* of the race of *Cachi Mutthu Vira-Camachirayen* being dead, his son named *Cachi-vira Muthali Vencatachella,* was crowned in C : Y : 3539. Some details follow, connected with the right hand class of people, to which *Vencatachella* belonged. Reverting to *Uriyur-Cholan,* he is stated to have been as bad as *Salivahana,* which conduct so displeased *Sada-Siva,* that he gave permission to *Cari Mari* (the *Durga*) at Conjeveram to send a shower of mud against *Uriyur.* But *Sevendhi-isvarer* admonishing *Uriyur Cholan* in a dream, the latter, fearing for his life prepared to take refuge in the *Conga-nad,* and there to keep himself concealed. His wife *Singhammal* was in a state of three months' pregnancy. The aforesaid *Cari-mari* opening the eye on her forehead, sent down a shower of mud. It arrested *Uriyur Cholan* half way in his flight, and killed him. From the circumstance of *Cari-mari* opening her frontlet eye she was called *Cannanur-mari. Singhammàl* with a single attendant arrived in the *Conga* country, and both performed manual labour in a *Brahman's* house. A son was born to her : he was well instructed, and at sixteen years of age an assembly of people occurred at *Tiruvatur* to consider the best means of remedying the evils which had arisen from the want of a king. The principal men from Conjeveram including the before mentioned *Vencatachella* were present, and a white elephant was brought from *Casi.* The usual arrangements being made, the elephant was let loose, and proceeded of its own accord to the *Conga* country, where it selected the above youth who was playing along with several *Brahman* boys. He was crowned and received the name of *Cari Cála Cholan.* The *Pandiyan* and *Cheran* are represented as summoned to be present. The date was C : Y :

3567 (A. D. 465). After all things had reverted to their course, the tale is introduced of the son of *Cari Cala Cholan* running over a calf in the streets of *Tiruvarur*. *Cari-cala-Chola* became troubled with the *Brahmahatti*, and to remove it, the same device as before was resorted to. *Yecambara-isvarer* of Conjeveram temple, instructed his wife *Camachi* to assume the guise of a fortune-teller. The remedy was to build 360 *Saiva* fanes, and 32 aqueducts for irrigation. Details at great length then follow of the founding and endowment of various *Saiva* fanes, too minute for being abstracted. Such details may have their use.—(Here the MS. being very much injured in different places, so much as needful was restored on other palm-leaves). The great prevalence of the worship of *Durga* throughout the *Chola* country is indicated. Most of the village fanes are erected to some name, or form, of *Durga*. Besides the intimation given in the early part of the work of human sacrifices having been offered on a grand scale, it further appears that *Samaiya Muthali*, a manager, or agent, for *Cari Cala Chola* offered one of his sons in sacrifice at *Trinomali*; and, at the demand of the *Durga* at *Mathurai* (Madura) he offered another son as a sacrifice. He then insisted that, for future years, human sacrifices should not be offered; but that the goddess must be contented with other offerings, a multitude of goats being included. It is stated that twenty-seven generations, and thirty-six reigns, occupied 2460 years. (In this statement, and in following ones, there is a recurrence of artificial structure). The number of fanes constructed by the three kings, *Chola*, *Pandiya* and *Conga*, is greatly exaggerated. Among other things it is said, that beneath the shrine of *Minacshi*, at Madura, there is a subterraneous way to the *Vaigai* river. A great many things are mentioned apparently with the object of magnifying the importance of *Samaiya Muthaliar*, and the weaver caste at Conjeveram. After which *Cheruman Perumal*, being at Conjeveram with his colleagues, the two other kings, he is brought forward as looking into futurity, and declaring matters in the form of a prophecy, to wit— The whole country will become Mahomedan: the gods of the chief places will retire into concealment. The Mahomedans, will exercise great severities. The *Samana* religion will increase—low tribes will prevail throughout the country. There will be want of rain, famine, deaths of people, in consequence. Every thing will be as in the days of *Salivahana*. The Mahomedans will rule during 360 years. They are termed *Racshasas*, concerning whom the sacred ascetics will complain to *Siva*. *Siva*, in consultation with *Vishnu* will resuscitate *Vicrama-*

ditya with his minister *Batti* and destroy by him, the Mahomedans. *Siva* will order *Vicramaditya,* born as *Vira Vasanta-rayer,* to reign with his posterity, during a period of seven generations, and 540 years. After that, while performing worship with eyes closed, the Moghul Padshah will come and destroy him. The *Rasgiri* Moghul and his posterity will reign 5 generations or 360 years. *Vicramaditya,* will again be born as *Rana-kandi Vira Vasanta-rayer* and rule with his posterity 7 generations and 540 years. Another Padshah termed *Cola Cala* will then come and destroy him, and rule for 5 generations and 360 years. *Vicramaditya* will then again be born at *Raya Velur,* and destroy the *Cola-cala Padshah* and rule with his posterity 27 generations and 2160 years. After that he will be taken up alive to *Kailasa.* Some other similar matters being stated, it is added that the *Chola* and the *Pandiya* dynasties will become extinct, and *Cheruman Perumal's* race alone remain, ruling in the *Conga*-country. *Suntarer Murti* carries *Cheruman Perumal* into the presence of *Sada Siva* ; and there he remains in a state of beatification.

There are a few more palm leaves, containing poetical stanzas on the boundaries of the Tamil countries, of no consequence ; similar ones having been translated and printed. They are allowed to remain attached to the book.

Remarks.—It appears to me that this rather extensive piece of composition is, in its introductory portion, a species of historical romance ; but, like many other such romances, containing some fragments of real history. The first date that is met with, fixing the destruction of *Salivahana* at *Cal. y.* 1443 (or B. C. 1659) is calculated to reflect disgrace and discredit, not only on the chronology, but also on the entire composition. There seems however to be something more credible when the installation of *Cari Cala Cholan* is dated, C. y. 3567 (A. D. 465). Just before there is an artificial structure visible in the 26 *Cherans,* and 26 *Pandiyans,* and 25 *Cholans,* and ascending upwards with these 25 generations from, say about C. y. 3550 to C. y. 1443, the result would be 80 years to a generation, far beyond probability ; and yet apparently to make room for so many generations, the author threw the earlier date so far back ; forgetting that the era of *Salivahana,* by common consent, did not commence until about 77 A. D. Besides, in the artificial, and untrue, representation of the three kings being so much and so long together, and uniformly of the same mind, there is a violation of what we know to be history, so far as they are concerned. The utmost that can be admitted is, that the author put together, in the best manner he could, the disjointed fragments of traditions which he

had heard; many of which may have been true, though not true as he has collocated them. Hence, to judge of the value of any such traditions, it seems expedient to discover at what time the author wrote. There is no trace, as far as I can perceive, of his name; but he has given an indication as to time. The book made use of, it may be observed in passing, is from internal evidence, a copy from some other one. It is not easy to judge of the antiquity of palm-leaf copies of works; so much depending on the care employed in the preservation. This particular copy may be 50 or possibly 100 years old. But however that may be, the date of the original, cannot I think, be much less than 300 years since. I derive the inference from the latter part, wherein *Vira Vasanta rayer*, is mentioned as a new incarnation of *Vicramaditya.* Up to that period the alleged prophecy is history in the main feature of Mahomedan rule, and violence. And to the best of my judgment, arising from the study of similar documents, I conceive the author to have lived and written some time in the 15th century, probably towards its close. Thenceforward he manifests ignorance; availing himself of some *Pauranic* annunciations as to the three *Vicramas*; but yielding nothing like matters of fact. I am of opinion, by consequence, that the author was patronised by *Vira Vasanta Rayer*, and wrote under his auspices. Of this *Vira Vasanta rayer* we find traces in the mention made of him in the smaller local papers of this collection, as may have been observed in those already abstracted; but from the *Carnata rajakal* we learn more distinctly that he was a viceroy of *Narsinha-rayer*, father of *Crishna-rayer*. The former who subverted the more ancient *Vijayanagara* dynasty, made a successful inroad into the Conjeveram and Ginjee country, I believe, before his conquest of *Vijayanagaram*; but whether before or after, he placed *Vira Vasanta Rayer* as his viceroy over the country that had become subject to the kings of Ginjee. The era of *Narsinha-rayer* is within the 15th century. Now if we consider the author to have written in that century, it will be apparent, that he might have some advantage over later writers in the matter of early tradition; and there may consequently be some circumstances in his account worthy of attention.

The writer's chief object seems to have been to frame an account of the foundation of the various shrines scattered over the extent of the Carnatic proper. The statements given concerning them form the larger portion of the manuscript, but these of course I have passed by, as they could only be developed by translation. In the event of any cause occurring to require an exact account of different shrines or fanes, I presume this manuscript might acquire a measure of conse-

quence not now belonging to it. As it is, there are a few historical indications that ought not to be despised, because the whole will not bear the severer tests of western historical writing. These indications are : That *Salivahana* was a *Samana* or *Savana* (for the writer, or his copyist, writes the word in both methods) that he persecuted the *Brahmanical* religion and patronised another, which for the present I suppose to be the *Jaina* system—that an insurrection took place, leading to the destruction of many of his people, but that he himself and his army escaped ; that he overran the country to the south as far as Trichinopoly, which he probably first fortified ; that he had a line of princes of his own posterity succeeding him—that he ruled in a town and fortress of his own construction, not being the capital where *Vicramaditya* ruled before him—that *Bhoja raja* was perhaps another name by which he was known, or was the name of one of his successors. That as *Salivahana* stands for the name of a dynasty (like Cæsar, Plantagenet, or Bourbon) so perhaps *Vicramaditya* may in other books, stand for a dynasty, and thus help us through the fable of his asserted long reign. These seem to me to be fair inferences, for fuller consideration hereafter. I will add, as mere conjecture, that *Samana*, or *Savana*, as it is often spelt, may possibly be none other than the change of *y* into *j* or *s* which is a very usual one ; thus giving us *Yavana*, and if so, then there is a concurrence, with a multitude of other indications, as to the interference of the *Yavanas*, with the greater portion of India, inclusive of the peninsula. For the original of the *Yavanas* we must look most probably to the *Bactrians*. Besides in the *Pantacurzis* (for which see a following page, MS. Books, No. 14, section 1), we have the remnants of ancient sepultures, of which the people of the present day know nothing, beyond conjecture. They accord with Dr. Malcolmson's account of similar ones at Hyderabad (Bengal Asiatic Journal) and with the contents of the mounds in the *Panjab*, opened by Honinberger and others. In the Carnatic they were found in localities that would rather indicate camps (*Castella*) than towns. At all events such vestiges are foreign. All *Hindu* records afford traces of foreign interference, which they usually mystify. The dark and mystified period succeeds the term allotted to *Vicramaditya* ; and the manner in which *Salivahana* is spoken of sufficiently indicates sectarian hatred, and resolution to conceal the truth.

The alleged flight by sea, of a portion of the garrison at Trichinopoly, I have not before noticed. It is not however to be entirely disregarded. The peopling of *Java* with a race evidently from India, has to be accounted for ; and the many concurring *Hindu* traditions and records, that people were driven from India by wars or persecu-

tions, proceeding thence by sea, all require to be noticed as they occur, seeing that in the end they will point to some general conclusion.

The symbolical language of the *Chola purva Patayam* (the document under consideration), may be adverted to in passing. It is a regular specimen of *Hindu* writing, and that, even in plain prose, involves bolder metaphors than would enter the minds of European writers, and more than metaphors, that is symbols, bordering on hieroglyphics; probably suggested by the use of hieroglyphical writing. The Mackenzie MSS. have in some degree educated me to a small degree of acquaintance with this language; though, on the discovery of this style of writing, a previous acquaintance with the symbolic language of the Christian Scriptures assisted me much. Generically both are the same; specifically they vary. Until this symbolic kind of writing is more fully understood, we cannot come at the real meaning, and contents, of a multitude of early *Hindu* writings.

One instance may be given in the fire-rain, of which mention occurs at the commencement of the manuscript. The *Jainas* have a doctrine, that a rain of fire always goes before the periodically recurring universal deluge; and this is only a slight alteration of the orthodox *Hindu* statements, that before the *Manu pralaya*, or periodical deluge, the sun acquires so much increased power, that all things are scorched up and destroyed, after which copious showers, in which water descends in streams like the trunks of elephants, involve the cinerated surface of the earth, deep within a folding of mighty waters; during which time is the night of *Brahma*, or quiescence of the creative energy; and during which time *Narrayana*, or the conservative energy, quietly floats on the surface of the abyss. But though the aforesaid notion of the *Jainas* may have suggested the idea of fire-rain; yet it seems in the document under notice to be a symbol, made use of to denote divine judgments: whether the idea, in this sense, may be borrowed from a well known historical fact, or otherwise, let others determine. *Hindu* writers reckon seven kinds of clouds, which respectively shower down gems, water, gold, flowers, earth, stones, fire; in which enumeration, part at least must be metaphorical. In strong poetical hyperbole a lightning cloud might be said to rain fire. But the lightning, and thunderbolt, form *Indra's* weapon. The fire-rain rather seems to be a symbol of the anger of *Siva*; in plainer terms, an insurrection against *Salivahana*; and if so, the shower of mud, may have a symbolical meaning also, and may help to the meaning of a tradition, which states that *Uriyur*, the capital of the *Chola* kingdom, was destroyed by a shower

of sand, or mud. This last event however, the manuscript in question aided by some others in the collection, has enabled me to perceive, is to be understood of a popular movement, beginning at Conjeveram against a violent *Chola* prince, directed with effect by a hostile *Pandiya-raja,* so that *Uriyur* was taken by force, and the king compelled to flee, being arrested and killed by the mud shower; that is being overtaken, and slain, by pursuers from the hostile army. It may suffice, for the present, to point, in general terms, at such clues to the meaning of symbolical writing; but to make full use of the whole can only result from digesting, and comparing all such indications together, which, for the present, at least, is not my task.

It may not be amiss to show, in passing, that the emblem, or symbol, of a fire-shower is not entirely strange to poets of the west. Thus Milton, in his absurd *pauranical* description of war in heaven, puts into the mouth of one of his heralds-angelic, this expression:

> ——————— no drizzling shower,
> But rattling storm of arrows, barb'd with fire.

And Campbell, a poet of our own age, in his Lochiel's warning, and in a passage, Hindu-like, poetically predictive of a past event, that is to say, the battle of Culloden, puts these lines into the midst of an expostulation from a local seer of the land, addressed to Lochiel—

> Why flames the far summit? Why shoot to the blast
> Those embers, like stars from the firmament cast!
> 'Tis the fire shower of ruin, all dreadfully driven
> From his eyrie, that beacons the darkness of heaven.
> * * * *
> Heaven's fire is around thee, &c.

Here the symbol is precisely the same in kind, as that which I suppose to designate some battle against *Salivahana* in which he was worsted, and saved himself, with the remnants of his army, by retreating across a river. While, his country being left open, those of his race who had taken refuge in stone-houses (or forts) were besieged and taken; possibly by starvation, emblematized by the mud-shower: even as the capture of *Uriyur* is handed down in popular tradition under the veil of that capital having been destroyed by a shower of mud. That I formerly* took a more easy and credulous view of this latter

* Orient. Hist. MSS. vol. ii. p. 91.

circumstance, will be no effective argument against a more mature, and as I think, a better conclusion.

Prof. Wilson's notice of this manuscript may be seen Des. Catal. vol. i. pp. 184 and 185.

2.—*Tiruviliyadal-Purana,* No. 34.—Countermark 84.

This is a copy of the Madura *St'hala Purana* in Tamil verse, complete, and in very good order. As noted in the next article, it wants some of the marks usually borne by MSS. of this collection.

3.—*Tiruviliyadal-Purana,* No. 35.—Countermark 24.

This is a copy of the same work, in prose ; and on examination was found to be incomplete, though otherwise in good order. It wants part of the 30th section, and the whole of the three following sections. This last manuscript retains the usual marks of having passed through Prof. Wilson's hands, and is briefly catalogued, vol. i. p. 173, No. xxvii, under the title of *Perawoliyar Purana.* The preceding copy wants that attestation, and is not mentioned in the catalogue ; giving occasion to some doubt whether it may not subsequently have been substituted in the collection for some other work.

Observation.—Since the Madura *St'hala Purana* (from a copy of my own obtained direct from Madura, several years ago), was abstracted by me, and the abstract published in the 1st volume of Oriental Historical MSS. it has not appeared to me needful to abstract the same work anew in this place. In order, however, to make the last copy complete the deficient portions have been restored on palm-leaves, and incorporated with the work in the proper place.

4.—*Sri-rangha Mahatmyam,* or legend of Seringham near Trichinopoly.

This is a palm-leaf MS. of seventy leaves in good preservation, and in very legible writing. It is found in the collection, without mark or number, but is noted in the Descriptive Catalogue vol. 1, p. 174. There is no need of doing any thing with it, as regards restoration.

The following is AN ABSTRACT of the Legendary Contents.

1. *Nareda* addresses *Isvarer*, and stating that the latter has told him all the wonders of the three worlds (upper, middle, and lower) desires to know the renown of the *Caveri-river*, and how *Sri-rangha* became a *Vaishnava*-fane. Extravagant praise as to the omnipotent virtues of doing any act of homage at *Sri-rangham*, is stated in reply, by *Isvarer*, forming the first *adhyaya*, or division, of the work.

2. *Nareda*, expressing his satisfaction at what he had heard, enquires as to the placing there of the *Vimana* (or shrine) to which *Siva* replies, forming the second *adhyaya*. In the time of the deluge *Narrayana* was sleeping a long time on the serpent *Athi-seshan* (singularly enough, from a later fable, said to be at the same time in the bowels of *Agastya*) *Brahma* was born—the *Pranava* formed (or mystic *O'm*), origin of the *Rig-veda* the *soma-yagam*—and the eighteen *puranas*—other similar matters of a mythological description, relating to times immediately succeeding the deluge.

3. *Brahma* began the work of creating anew. *Brahma* studied astrology to acquire foreknowledge. He also performed penance. The *Cármúvatara* of *Vishnu*. *Brahma* said that *Vishnu* had assumed many deceptive forms, but he wished to see him (*Vishnu*) in his own form. In consequence a *Vimana* or shrine, was produced; described in highly hyperbolical language. *Brahma* worshipped the image therein of *Vishnu* in a reclining posture—extravagantly described. Forming the third *adhyaya*.

4. *Brahma* made one-hundred thousand prostrations to *Vishnu*; and declared that he ought to be so honoured for crores of years without end. *Brahma* terms him *Jaganat'ha* (lord of the universe) and, "father." A long string of similar praise, indicating this image of *Vishnu* to be all things, and all things in it. *Vishnu* declared his satisfaction with the eulogium pronounced by *Brahma*, and enquires what gift he requires.

.5 *Brahma* requests that *Vishnu*, under that form, will always be in that image; and that he (*Brahma*) may always have the privilege of worshipping it. *Vishnu* tells *Brahma* that if he so worship him during one-hundred years he will attain beatitude; and if others so worship him they will attain beatitude. Some little explanation is given of what is meant by beatitude.

6. *Brahma* desires to be informed as to the proper manner of performing homage and service to *Vishnu's* image. This is stated; and it is added that he is a *Chandala* who does not worship *Vishnu*, being a quotation of a stanza by *Pillai-perumal-ayengar* : whosoever speaks against the *Sri-rangha*-image is a *Chandala*. If there be an ignorant person that knows nothing of *Sri-rangha perumal* the food he eats is the same as that given to a dog. *Brahma* took the shrine to *Swerga-loca* (*Indra's* paradise) the precise day of which event is stated, with astronomical accompaniments; but in what year is not mentioned. The sun was summoned; was taught a *mantra*; and directed to worship the image; which *Surya* accordingly did. *Surya's* son did the same, and *Icshvacu*, the son of the latter, also paid homage. The latter brought the image back to earth again. Many kings of the solar race worshipped it in subsequent ages; and all who did so (*Isvarer* informs *Nareda*) were prosperous.

7. *Nareda* enquires the cause why the *Vimana*, or shrine, came down from heaven to earth? Why did Brahma give it to *Icshvacu*? and for what reason was it brought, and placed in the midst of the river *Caveri*?—*Icshvacu* was a king of *Ayodhya*—he was taught by *Vasishta*. He killed all the evil *Racshasas*, and while reigning equitably, he one day thought on his father *Vaivasvata*, and others, having gone to the other world; and there, by worshipping this image, obtained beatification; but that since he himself and his children could not go thither to worship, it would be expedient, by penance, to bring *Sri-rangha* down to earth, which thought he unfolded to *Vasishta*. The latter was rejoiced and taught him the eight lettered charm. The gods sent *Manmatha* to destroy the penance of *Icshvacu*, who wounded the latter with one of his arrows; but *Icshvacu* was firm, and prevailed. *Indra* came down to disturb his penance; but *Icshvacu*, by meditating on *Sri-rangha*, brought down the flaming *Chacra* of *Vishnu*, at the sight of which *Indra* fled, and *Icshvacu* ascribing the praise to *Sri-rangha*, continued his penance. *Sri-rangha* now tells *Brahma* that he will go down to *Ayodhya*; and stay there during four *yugas* and afterwards remain between both banks of the Cáveri during seven *manwanteras*; and then again return to be in time for *Brahma's* mid-day worship; and subsequently go to earth and return again perpetually; but that while absent no evil shall happen to *Brahma*. In consequence *Brahma* put the *Vimana*, on *Garuda*, and brought it down to earth; where he taught *Icshvacu* all the needful ceremonies to be observed in its worship.

8. The *Vimana* was placed in the centre of a river at *Ayodhya*, where a temple was built for it, and all accompaniments provided. The race of *Icshvacu* worshipped during a *maha yuga*, or great age. At that time a *Chola raja* named *D'herma Brahma*, went thither to a sacrifice, and enquired of the *rishis* the circumstances attending the transit of the *Vimana* from heaven to earth. He professed a desire to do penance in order to obtain the image; but the *rishis* told him it would be useless; explaining to him, that they knew the town of his ancestors, to which *Sri-rangha* was due-west only a mile or two, had been destroyed by *Siva*, because one of his progenitors had trampled on the flower garden of a *Muni* there; that *Vishnu* would soon be incarnate as *Rama*, who would give the *Vimana* or shrine into the hands of *Vibushana* (younger brother of *Ravana*) who would place it at *Sri-rangha*. (A defiance of chronology is here involved, in making the destruction of *Uriyur* anterior to the expedition of *Rama*). *Rama* being come made an *Asvamedha yágam* (horse-sacrifice) to which *D'herma Brahma* went; and, before the other assembled kings were dismissed, he asked leave to return home. *Vibushana* followed, bringing the shrine by permission of *Rama*, which he placed between both banks of the *Caveri*; with the mention of which the 8th *adhyaya* concludes.

9. *D'herma Brahma* detained *Vibushana* from going to *Lanca* for the space of 15 days, during which time a festival of 10 days was celebrated in honour of the image. At the end of the 15 days, *Vibushana* purposed to take up the image again on his head, and carry it to *Lanca*, but found it to be so heavy, that he could not move it, on which being greatly grieved, and prostrating himself before the image, *Perumal* told him not to grieve, for that it was previously appointed that the shrine should remain here, in the good land of the excellent *Chola* kings; and, to account for it, narrated a fable of a dispute between the *Ganges* and the *Caveri*, as to which of the two was the greatest; which being decided in favour of *Ganga*, the *Caveri* (personified as a female) dissatisfied went to the north-side of the *Himalaya*, and there began a severe penance. *Brahma* demanded what gift she wanted. The reply was to be greater than *Ganga*. The answer of *Brahma* was, that this could not be; but he bestowed on her the gift of being " equal to *Ganga*." *Caveri* dissatisfied " came to a place near this," added *Perumal*, " and there worshipped me, demanding to be greater than *Ganga*. As nothing belonging to the world can be greater than *Ganga*, I promised to come myself and reside between the banks of the *Caveri*, whereby in effect the *Caveri* should

have a pre-eminence over the *Ganga:* to fulfil which promise I am come here, and cannot go to your town, *Vibushana*! but at that you must not be sorry." *Vibushana* expressed a wish to remain; but was forbidden, and a promise of protecting his town being added, he went to *Lanca* and resumed his reign. *D'herma Brahma* had many additions made to the shrine.

10. The domain round *Sri-rangham* was two *yojanas* (20 miles); those living within it are destitute of sin. Praise of the *Chandrapushcara tirt'ha*, or sacred pool. Praise of the *Vilva tirt'ha*, wherein *Sucra* performed penance; which will even remove the crime of killing a *Brahman*. *Jambu-tirtha* where *Paramésvarer* performed penance. *Aswa tirtha: Indra* performed penance there, it removes all sins against matronly chastity. *Palávasu tirtha* removes all evil contracted by living in the midst of vile persons. Details of other tanks and their virtues. Mention of persons who had crimes removed at *Sri ranghum;* among them being *Nareda* to whom the narrative is professedly made. Persons to whom the *Mahatmya* is to be read; that is, good *Vaishnavas* alone. Advantages of having it in the house: benefits derivable from hearing the *Mahatmya*. As for example, if a *Cshetriya* wishes for a kingdom he will obtain one; and the like, in proportion, to other kinds of people. In conclusion *Isvarer* praises *Nareda* for his patience, and piety, in listening to the narrative; offering to add more if required. *Nareda*, in return, declares that by the recital, his knowledge is perfected; he wishes for no more. The *Sri-rangha Mahatmyam*, it is then said, was translated from the *Grant'ha* of the *Brahmanda Puranam*, by *Appiváchároyar*.

5.—Delhi Maharajakal Kyfeyutt, or an account of the Kings of Delhi

Palm-leaf Manuscript No. 233.—Countermark 79.

When *Vicradmaditya* (to whom is given a profusion of titles) reigned, *D'herma raja*, had quitted the earth at the end of the *Dwápara-yuga*: he left *Paricshit* ruling down to C.Y. 126. *Janamejaya* 77 years, *Sivaca-Maha-Raja* 80, *Rajendra* 45, *Sarangadaran*, with whom the *Chandra-vamsa* ended. Then follows *Purura Mantatha* 83 years. Next *Mathipála Maha-raja* ruled 25 years, *Logitha Maha-raja* 53, *Gangádhara* 56, *Váma déva* 53, *Trinetra* 56, *Partiba vijaya* 72, *Purinatha* 53, *Pushpa gandra* 58, *Athiya rayer* 58, *Padma gandra* 49, *Utrija raghava* 54, *Aiventhi* 54, *Bauvuma* 55, *Sudra Cartica* 65, *Asagaya-sura Vicramaditya* 2000 years; in all 3179 years. *Salivahana* 70 years. *Vimala Kethana* 58. *Bhoja raja* conquered the north, and ruled over the south

Kanaka-rayer of *Cambira-desam* was his minister, and at the head of sixty-three other persons ; afterwards settled as accountants, of whom details follow, with the names of the towns in the Carnatic, where *agraharams* were established for them. The sixty-four families of Brahmans, thus introduced into the Carnatic from the North, became the settled accountants and arbitrators of boundaries. They conducted their accounts in the *Girvanam* language. (Sanscrit in the Balbund character). *Bhoja raja* ruled 66 years, from Sal. Sac. 128 to S. S. 194, his rule ended in *Cali-yugam* 3373, corresponding with Sal. Sac. 194. Next ruled *Rajendra* 71, *Mádhava varma cholan* 31, *Pandiya* 60, *Vira Chola* (also called *chéran*) 51, *Deva Cholan* 29, *Sorn Cholan* 20, *Rajá Cholan* 41. He was also called *Cali Cála Cholan.—Devendra Cholan* 60, *Maratnda Cholan* 65, *Rajathi raja-Cholan* 33, *Palala* 30, *Vira Pallala* 41, in all 532 years, agreeing with *Cali yug* 3905, Sal. Sac. 729.—*Chenna Balállan*. In his time a famous *annicut* (or aqueduct) was formed from the Cauvery for irrigation, all the 56 kings, except *Vicrama Cholan* king of Cashmir, contributed; and his share was divided and borne among theremaining 55. As his quota was afterwards brought, that was appropriated in rebuilding an *agraharam*, that *Bhoja raja* had caused to be constructed at *Chatur Veda mangalam*, which during the ascendancy of the *Jainas* had been allowed to go to decay and the king dissipated the *Jainas*. The *agraharam* received the names of *Vicrama Chola-purm*, *Tanniyur*, and *Caveri pakam*. After which the Cashmir king, went away. *Chenna Ballala* ruled 41 years. *Vishnu Verrddhana* 40, *Raja Ballala* 51 years, *Irthiya Ballala* 41, *Vijaya* 41 : other names of *Ballála* kings, running into the *Rayers* are given, with a total of 736 years; corresponding with Cali yuga 4641, Sal: Sac. 1462. *Pravuda deva rayer* 21, other *rayers* (not in correct order) for 80 years down to C. Y. 4721 Sal. Sac. 1542 : so far the *Rayer* dynasty ; afterwards that of the Mahomedans.

There follows a story (not complete) founded on the question " whether the learned, or the vulgar, are to be blamed in the impositions practised under the sanction of the popular system of idolatry ?"

Also a Memorandum from one of the Colonel's agents, as to MSS. and documents previously supplied.

It states that *Periya Virapa Nayaker* son of *Periya Kistnama nayaker* conquered the king of *Malivavanam*, and also Mysore. It has the singular statement that *Satyavrata* was a *Pandiya* king of Madura ; and that the story of the *Sap-hara*, or little fish, had its site at Madura, being the *Matsya avataram*; on which account it says the *Pandiya*

kings used the fish banner, or umbrella. It may be noted, in passing, that the 8th book of the *Bhagavatam* places the site of *Satyavrata's* penance in the *Dravida-desa*, or *Tamil* country.

Remark.—The last memorandum has little or no use, beyond the two items selected. The preceding one is merely a story (not complete) ascribed to *Crishna-rayer's* time; tending to illustrate the easy credulity of men, as imposed on by ascetics, mistaken for gods. This tale may have its use in a series of tales; but is quite irrelevant to the title of the manuscript. The first article does not correspond with that title except in a brief allusion to the race of *Dherma raja*, at the beginning. What follows is not of much consequence, except as to the introduction of the 64 Brahman families settled in the Carnatic. Concerning this settlement other illustrations will appear; and it is similar to the mode followed in Malayalam, according to the *Kerala Ulpati*. Whether Brahmans had footing in the south of India before that time is, at the least, doubtful. In other documents the matter will be further elucidated. The abstract given of the MS. is almost a translation. It has evident, and very gross anachronisms; and I am afraid none of its dates can be depended upon. It contains only four and a half palm-leaves quite fresh and in good order; by consequence not needing restoration.

6. Palm-leaf Manuscript, No. 223—Countermark 80.

Delhi *Janamejaya Raja-vamsa vali* (or the race of *Janamejaya* king of Delhi).

This is a MS. which with a promising title, and a large external appearance, has almost nothing within, containing only eight palm-leaves written upon, and a supplement of blank leaves. It bears within itself the title of "the early history of the Bengal country;" but it sets out with *Janamejaya-raja* of *Hastinapuri*. The appearance of the palm-leaves, and of the writing, is comparatively fresh, and as it comes down to Lord Mornington's government, dated Fusly 1220, it must be a recent writing.

The following is an Abstract.

After *Janamejaya* son of *Paricshit*, who died about 100 of the *Cali-yugam*, many kings reigned, and took tribute during 3000 years. *Vicramaditya* after that became incarnate, and ruled over Hindustan, Bengal, the Deccan, and the Western Peninsula, receiving tribute from all kings. *Salivahana* fought with him, and he fell in C. Y. 3171.

Salivahana governed after him with equity 349 years. Many kings after *Salivahana* reigned down to C. Y. 4300. Sultan *Schaf-din-Gory*, from the country of *Iran* came with a large army to Delhi, Hegira 591; and overthrew *Barti raja*; and, seating himself on the throne, he ruled over the country including Bengal, placing his Fouzdars in all countries. From that time Bengal became a Mahomedan dependancy. Timur's invasion: he levied extensive tribute over the *Dacshin* down to Hegira 900. Hindustan was under Timur's descendants. Humaion Shah's defeat. Acbar ruled well. Jehanguir gave the Fouzdari of Bengal to a brother of *Nur* Begam, whom he removed in anger and put another Fouzdar in his place. From that time, different Fouzdars governed Bengal—Alemguir—Jehan Shah. After some details, the narrative comes down to the English Bahader, Governor William. The English were merchants. The Vizier of Lucknow collected tribute for Delhi. His son was *Suja ud dowlah.* The Moorshedabad Soubadar was Maphuze Singh, tributary to *Suja ud dowlah.* Thus down to Fusly 1180 things went on, till Maphuze Singh died. His elder sister's son, Nabob *Siras ud dowlah,* became Soubadar. Mr. William from London, in England, came and settled at Calcutta, and hoisted a flag, keeping in pay a few troops, and traded. Affair of a gomestah and a sowcar. The gomestah went to Calcutta, and *Siras ud dowlah* called the English Vakeel, demanding his Nabob to be given back, *Siras ud dowlah* in great wrath invaded Calcutta—a little fighting—and the Soubadar took Calcutta. In Fusly 1210 the father of Lord Clive, Governor Clive, came with troops from Madras (F. 1170) battle—the Nabob was wounded by a musket ball, and after a short time died. His elder sister's son was *Cassim ali Khan,* who continued the fighting. Division of the country with the English, by treaty with *Sub ali Khan.* Two engagements.—Nabob defeated—treaty—increase of English power. Death of the Nabob,—F. 1208, his younger brother succeeded him. The Moorshedabad Nabob died. Lord *Marit* sent General *Lixon,* who went to Delhi and took it; and they kept the Padshah by their side, regulating the police (or government): they took a *sannad* from the Padshah, acknowledging their authority over all things. Such of the Hindu sovereigns as paid them homage, they retained as tributaries; and, fighting with those who resisted them, down to F. 1220 (date of the writing) they continue still to govern the country of Bengal.

From this abstract it may be seen, that though the MS. contains nothing not otherwise known, yet that it is in some measure curious, and as such perhaps worth translation.

Prof. Wilson's notice of this, and the foregoing, manuscript, will be found in Des. Catal. vol. 1, p. 200-1, and is as follows :

" XIV.—*Dilli raja Katha*

Palm-leaves.

" A short genealogcial account of the descendants of *Arjuna*, and a few Hindu princes, and some account of the reign of *Krishna Raya* of *Vijayanagar*.

" XV.—*Janamejaya Vansavali.*

Palm-leaves.

" A short account of the family of *Janamejaya* the great grandson of *Arjuna*."

7.—Palm-leaf book, No. 1.—Countermark 953.

Inscriptions at the *Vaishnava* fane of Conjeveram.

1. On the *Sampanci* sacred wall, and on the southern wall, on the hill.

Inscription of *Vai raja Timmapa* Sal. Sac. 1413. Commemorates a gift by *Vai raja Timmapa*, of 4,500 *fanams* (of what kind not specified), to be given yearly at the *Divala*, and *Up uthi* festivals, for the expenses of processions, and for furnishing the usual offerings of ghee, sugar, and other matters for making sacred viands, as customary in *Vaishnava* fanes.

2. On the sacred hill, on the *Sampanci*, and the southern wall.

Inscription of *Nagaina Nayani* of *Mucapalam*, Sal. Sac. 1409. A gift of ghee and other matters, for lights and offerings, to be raised from the revenues of a village called *Tiru pani pillai*, made in the time of *Saluva Timma*, of the race of *Narasimma rayer*.

3. On the sacred hill, below the *Sampanci*, on the southern wall (In Telugu). Inscription of *Saluva Timma raju* Sal. Sac. 1403. *Timma* was the son of *Saluva Saluva Malliya deva maha raja*. Gift of 7,800 fanams for four kinds of service in one fane, and two kinds in another fane, to arise from the products of cultivation.

4. On the south side of the tower, on the *Sampanci*, below the southern wall.

Inscription of *Tiru vithi sani* the daughter of *Ammani*. Dated in Sal. Sac. 1408. Gift of 300 fanams, for conducting a certain ceremony of singing, &c. at the time of the god's rising up in the morning, after sleep.

5. Inscription of *Narana patla vari* the *Purohitan*, or *Brahman*-adviser of *Crishna Rayer*, dated in Sal. Sac. 1436. Gift of ten thousand fanams arising from the products of cultivation, for offerings before the god, eight times daily, of ghee, and various other articles specified.

6. Dated in Sal. Sac. 1528, during the rule of *Sri Vira Vencatapati ayya-dever* (of *Pennacondai ?)* by *Anumaya-annayangar*, son of *Lalaga Nayaka* of the *Cauri* caste people of *Malliya vanam* near *Vijayanagara*, of 365 gold huns for the 365 days of the year, for the gift of two large tureens of rice, to be offered to the two images, and the overplus of the expense to go to the inferior temple attendants.

7. Dated in Sal. Sac. 1123 donation by *Udanda Rayer Ulagappen*, of 840 *fanams* for the conducting certain ceremonies, on the monthly recurrence of the *nacshetra* (lunar mansion) of his own birth, and that of his mother. (It is of early date, and the title *Ulagappen* means "*father* of the *world*").

8. On the sacred hill, on the southern side of the shrine (*vimánam*).

Inscription of Timma raju, son of *Saluva Gunddu raya udiyar*, dated in Sal. Sac. 1385. Gifts of some land for the conduct of offerings.

9. On the southern wall facing the street, in which the car is drawn at festivals.

Inscription of the merchant *Crishnama Chetti*, dated in Sal. Sac. 1458, what was given not known, as it is stated that the remaining letters of the inscription have become illegible.

10. On the same wall.

Inscription of *Koppu Nayani*, a disciple of *Tattacharya*. Dated in Sal. Sac. 1467. Gift of 3,750 fanams for offerings, to be conducted on the eleventh day of every lunar fortnight.

Note. The above palm leaf MS. is badly written in small letters, and the palm leaf is in some places eaten away. It is therefore restored on paper, as some of the dates and names will be useful in elucidating a few obscure points, in the more modern portion of the Peninsular history.

8. Palm-leaf book, No. 232.—Countermark 98.

Chengi Rajakal, account of the rajas of Ginjee.

This is a MS. of 28 palm leaves, damaged by worms. It is written in Tamil verse of an easy kind. Its chief object is to celebrate the heroism of the last of the *rajas* of Ginjee, of the dynasty proceeding from the original viceroy from *Vijayanagaram*. The final defence of the fort of Ginjee was very obstinate. According to this poem the *raja* headed his troops in person; and, when he found himself no longer supported by them, he rode among the Mahomedans, dealing destruction around him, until overpowered and slain. This rashness the writer magnifies into extraordinary heroism.

NOTE. As the manuscript is in a state of incipient destruction, it has been restored.

Professor Wilson has very briefly noted the MS. in Des. Catal. vol. 1, p. 207. Art. xxvii.

b. MANUSCRIPT BOOKS.

Manuscript book No. 50—Countermark 1019.

Section 1st. Copies of Tamil inscriptions at *Sri-rangham* near Trichinopoly, and other places of the *Chola-desam.*

No. 1. Date Sal. Sac. 1581, commemorates a donation by *Choka Natha Nayak* of the race of *Visva-natha Nayak,* to five classes of people of an elephant, two horse-tail fans, a white umbrella, a palanquin, a tent—to be used in the public solemnity, when the image of *Seven-tesvarer*-fane should be carried out in procession, and with a view to obviate some irregularities that had occurred in such festival processions.

No. 2. Date 1599 of *Aruronar* (unknown era) gift by *Virapa Nayaker,* in the time of *Vencata-deva Maha-rayer,* of land in the villages of *Conal* and *Pallava-puram,* for the continual conduct of certain festivals connected with the above fane.

No. 3. No year—*Tirumala Nayanur* and *Villumiya Nayanur,* gave certain gifts to the fane; the exact nature of which cannot be ascertained, as the copy of the inscription is imperfect.

No. 4. A gift in the time of *Kulottunga Cholan* (year not specified) of certain lands to the above fane, by a union of several respectable leading men.

No. 5. One *Aran* a *racshasa* being afflicted with *Brahma-hatti,* did penance to *Siva.* In proof of which there are certain remains near to *Rajendra Chola-pettah,* and two gigantic images of 20 yards in height, and 12 yards in circumference.

No. 6. Date Sal. Sac. the figure for one thousand, and space for some other figures blank. *Vira Pravuda-rayer,* son of *Vira Vyaya-rayer Maha-rayer,* gave a large extent of waste land near *Rajendra Chola pettah*; the produce to be for ceremonies at the festivals of certain fanes, three in number.

No. 7. Gift of land belonging to *Raja Kembira Chola pettah*, by the people of the town, attested by the names of five among them. No date.

No. 8. Inscription in the village of *Pedu-vayi-tuli.* In the seventh year of *Rajendra Cholan.* A chief (titular style only mentioned) pressed certain bricklayers, and iron-smiths, and by their means made some additions to a fane. Inscription incomplete.

No. 9. Inscription on a stone at *Vettu-vayi-tuli;* the dimensions of the stone are given; but the inscription itself seems not to have been copied.

No. 10. Same town. In the 20th year of *Sri Kulottunga-Chola-dever.* The letters are become illegible, copy therefore incomplete. It relates to a gift of some extensive land near to Trichinopoly.

No. 11. Same town of *Vettu-vayi-tuli,* dated Sal. Sac. 1608. *Ranga-kistna-Mutthu-virapa-Nayaker,* of the race of *Visvanatha Nayaker,* certain repairs, by his order, of structures in that town originally built by *Chola* princes, which had gone to decay.

No. 12. Dated Sal. Sac. 1240-25, the name of the donor obliterated—gift of land to *Prasanna Vencatesvara svami.*

No. 13. Inscription in a fane of *Subrahmanya,* Sal. Sac. 1444, in the time of *Sri-Crishna dever Maha-rayer,* gift of land.

No. 14. In the 30th year of *Rajendra Chola dever,* gift of a village, producing ten thousand pieces of gold (*huns*).

No. 15. Inscription in *Tiru-yarembesvarer,* hill fane, on the elephant gate, date Sal. Sac. 1307, gift of land for repairs of the said fane, a certain proportion of revenue given, by whom not stated.

No. 16. Dated in the 3d year of *Sri-Kovi-raja Kesari Pandiyan,* the remaining letters are stated to have become illegible by time.

No. 17. Dated in the 5th year of *Sri-Kobi-raja Kesari Pandiyan*—letters become illegible.

No. 18. Dated 70th year of the same (but supposed to be an error for seventh year) appropriation of a village to a fane of *Agnesvara*—incomplete.

No. 19. Dated in the reign of *Sri-Kobi-raja Kesari Pandiyan,* and in the seventh year of *Kulottunga Cholan* (thus intimated to be contemporaries), gift of land in *Vayalur.*

No. 20. Dated in the reign of *Kesari Pandiyan* and third of *Kulottunga Cholan* gift by *Pili Vana-udiyar,* son of *Mathurantaca-udiyar,* of certain customs from produce of lands. Short Gran'tha addition.

No. 21. Dated 2d year of *Raja-raja-dever,* gift of land for maintaining lamps in a fane, by whom not mentioned.

No. 22. Dated 6th year of *Kovi Kesari Pandiyan*, gift of land for the internal ceremonies of a heathen fane.

No. 23. Dated 3d year of *Vira-rajendra-dever*, who is either the subordinate of *Kovi Kesari Pandiyan*, or else the same; with an additional title, the wording is obscure—gift to the fane of *Villumiya-dever* for the keeping up a perpetual light with *Neyi*, or butter oil.

No. 24. Inscription at *Nanga puram*, in the talook of *Vittu Katti*, dated in the 16th year of *Rajendra chola dever*, gift of land by certain persons, whose names are subscribed for the benefit of the fane of *Tiru-mavanesvarudaiyar*.

No. 25. Dated in the 10th year of *Sri-Suntera Pandiya dever*, same town, same fane, with two other fanes: from the imperfection of the copy, what was given not ascertained.

No. 26. Dated in the 7th year of *Raja rajendra-chola-dever*, other letters of the inscription, could not be made out.

No. 27. Gift of two villages by certain chiefs whose names are mentioned to *Rangha* the image of *Sri-rangham*-fane, through the head Brahman of the class of *Ramanuja* of Tripety.

No. 28. Dated in the 30th year of *Sri-raja-dever*. Gift of six marcals of grain for each rice field, and a quarter fanam each field of other kinds, to go towards the celebration of the marriage of the god and goddess of *Mathues vara*-fane, and the conduct of other festivals, from *Vencatapati-rayer*, son of *Vira Vallala-raya-dever*, pre-eminent *raja* of the north shore. It is a stone inscription in the fane in *Velur* of *Vittu Katti* talook.

No. 29. Dated Sal. Sac. 1629 (A. D. 1707). Gift of customs of a half measure out of every *calam* (96 measures) of rice, from one hundred and eighty villages, from three persons *(Hindus)* who from their titles appear to have held office under Mahomedans, to *Sri Vira Narrayana Swami*, of Manar Kovil, in the *Manar* district.

No. 30. Dated the 6th year of *Sri-raja-raja-deva, Uttunga Cholan*; imperfect; nothing further can be made out.

No. 31. Dated 2d year of *Sri-raja raja-raja-dever*. At *Prapanja Pichaila-giri*, where *Agastya* formerly dwelt, and which had sunk lower down into the earth: *Cari Cola Chola*, coming thither, saw a golden coloured chamelion-lizard, which he wished to catch, but it entered into a hole, in digging up which, blood was seen, and a form of *Siva* appeared; by reason of which appearance, a fane was built on the spot, and this having decayed, the aforesaid *Raja dever* (as far as can be made out) restored the said shrine and gave for that pur-

pose thirty thousand *velis* of land (each *veli* containing five cawnies, the whole being upwards of one hundred thousand acres).

No. 32. Dated in the 10th year of the *Chola raja Kesari Mandiyar,* some letters and words wanting. It is a gift of village lands; but for what object does not appear.

Translation.

No. 33. An inscription in *Mel Pallur,* or (upper *Pallur*). Dated Sal. Sac. 1439 (A. D. 1517).

The ruler of the entire world *Hariya-rayer Vipadan,* faultless in speech, taking possession of other countries, never relinquishing his own, the south quarter .... the excellent courageous ruler, *Sri Vira Crishna rayer,* the great emperor; the restorer of the *soma-sula* tax, and of the other taxes of the *Chola-mandalam,* and of the *Saiva* and *Vaishnava* temples............ ..... (a number or part of a name) having taken certain countries, and conquered *Vira Parchunan,* the son of *Pratapa Rudra,* the *Gajapati* prince, and certified the conquest in the presence of *Mallicarjuna* (the god at *Vijayanagaram*) gave four thousand pieces of gold, for the service of the god *Mallumisvara Nayanar,* of this town; a Sanscrit *sloca,* in praise of the giver.

[The above is as near a translation as can be made out: it is of some use].

No. 34. It bears the two names of *Sri Kovi Kesari Pandiyan,* and *Suntera Pandiyan,* seventh year of reign—title of a ruler on the south shore—(the remaining portion could not be recovered by the copyist from the original stone).

No. 35. Inscription cut on stone in the fane at *Ambur*—dated in the second year of *Kulottunga Chola-dever.* Gift to *Arakesvaranudiya, Nayanur,* the image of *Amur*-fane from *Amutakadir-yudiya-raja* of the north bank of the Caveri, of a thousand (what not mentioned), in free gift (therefore must be land), in the village, for the service of the fane of *Tiru-vakesvaramudiya Tambiran,* the same image, with an addition of epithet.

No. 36. Dated in the 14th year of *Sri Kopa Kesari Pandiyan* imperfect.

No. 37. Gift to *Niluvanesvara Tambiran* from *Kesari Pandiyan,* the giver of his own weight in gold, and a heap of vestments like a hill, a courageous warrior, and ruler of the three worlds. (*Tribhuvana Chacraverti Nayanar*). He gave one hundred gold *huns* for the use

of *Varada Nambi,* the head Brahman, to the temple female slaves, and other temple attendants.

No. 38. Dated in Sal. Sac. 1112, gift to *Nilivanamudiya Nayanur* of fifty gold pieces, by the whole of the people of *this* village (name not given) for the celebration of the marriage of the said god in the month of April.

No. 39. (Very short and perfect). Gift of an elephant vehicle by the head man of *Mathurantacam* in the country of *Rajendra Chola,* of the north bank (supposed of the *Caveri*), to whom, when, or for what object, not stated.

No. 40. A few Sanscrit words in Tamil and *Grant'ha* letters, without connected meaning, copied from the inner building of a fane of *Ganga Kunda puram* in the *Udiyar Palliyam.*

Manuscript book No. 14.—Countermark 768.

Section 1. Account of Pandoo coolies (*Pantacurzis*) in the *Jaghire,* and Arcot districts, written from different verbal accounts.

This paper contains an account of certain *subterranea,* or excavations, as if they were tombs discovered at various places : of the exact nature or character of these pits there appears to be no certain knowledge; but the writer has collected, and stated, the traditionary accounts of people near the places, where those excavations were found ; by which they are ascribed.

1. To a desire of obtaining shelter from a predicted shower of fire, about the beginning of the era of *Salivahana*—2. To certain pigmies that lived towards the end of the *Dwapara yuga,* who constructed for themselves these dwellings under ground—3. To the five *Pandavas,* as a refuge from the persecution of *Duryod'hana*—4. To the votaries of a certain goddess named *Nila mucari,* who offered to her monthly sacrifices therein—5. To the *Vedar* and *Curumbar* (hunters and savages), of former days, as places of protection for their wives and children, from wild beasts—6. To certain men in the time of *Rama,* who had monkey's tails, whence these pits are by some called *Vali-cudi*—7. To *Racshasas,* or evil beings, who constructed these places of safety for their wives and children—8. To a custom of very early times after the deluge, when men lived so long as to be a burden to themselves, and their relatives; so that the latter put them in certain earthern shells with a supply of provisions, and left them to die.

These excavations are stated to be of various fashions, and sizes, and some have the appearance of being tombs of great or distinguished men. Tradition states, that great wealth was most certainly discovered and carried away from some of these excavations.

Section 2. An account of *Tondaman Chacraverti*, in the district of *Canchi* (*Conjeveram*).

There were forty-four generations previously of the *Chola* race, who were persons of self government, but the last of them *Kulottunga Cholan* (who had only a son and a daughter) having killed the son of *Camban* the poet, the latter killed the king's son, and the king afterwards formed an intercourse with one of the female attendants of his court, and had privately a son by her who was named *Nagi-naga-rattanam.* The child was exposed in a golden vessel on the banks of the *Caveri* river, and was discovered by the *Brahmans* and head officers of the king who recommended it to the king for protection as being like him, and from an *adonda* flower being near the child they called it *Adondai.* The king gave it in charge to his queen to rear it up, who readily undertook the task. The king's *Mantiri* (or minister), was alone somewhat instructed in the secret. The child proved to be possessed of heroic qualities. On consulting how to give him a kingdom, an eye was cast on the country northward, wherein the *Curumbar* had constructed twenty-four forts, being an immense forest (wild or open place). *Kulottunga Chola* fought with the wild people (*Curumbar*), but could not conquer them. *Adondai*, his illegitimate son with a great army fell on them and conquered them to extermination. *Kulottunga* then came ; and, having the forest cleared, founded the distinguished town of *Canchi-puram* in which he built a fane, and dug a channel for the river *Palar* to flow through it, or near it. There being a deficiency of inhabitants, *Kulottunga* gave his minister much wealth, who going to other countries brought men and women, and had them married together, according to their respective tribes or castes. By way of affixing a stigma on the newly conquered country the minister recommended that it should be called *Tondar-mandalam* " the land of slaves." But the king without penetrating his minister's design, called it *Tondai-mandalam*, and gave it to his illegitimate son *Adondai*, who was accordingly crowned in *Canchi ;* and as he had conquered the ferocious people, the former inhabitants, he acquired the additional

epithet of *Chacraverti.* From that time the former name of the country (*Curambar Bhumi*) became extinct.

Remark.—This short paper has its value as being a brief and unvarnished account of an historical fact, otherwise variously and verbosely told, with much of superfluous fiction, and rhetorical ornament.

Section 3. An account of *Candava rayen* and *Chethu rayen,* the two sovereigns of the *Vannier*—(fire-race, a tribe of low cultivators) who ruled in the fort of *Tiruvidai churam.*

This fort was in the district of Chingleput, and this account was taken from the mouth of one named *Sahadeven-nattan.*

Anciently the *Curumbar* ruled in this country. *Adondai Cholan* came from Tanjore, and destroyed them ; and, having acquired the title of *Adondai Chacraverti,* he established in their place the *Kondai Katti Vellazhar* (agriculturists who bound up their hair as women do). In those days the *Vannier,* or *Patti* people, by permission of the ruler of the country, built this fort for themselves as their own. But they paid tribute to the sovereigns of the *Andhra, Carnata,* and *Dravida* countries. No written account of their race has been preserved. But of their posterity *Candava-rayen* and *Chetthu-rayen,* came to the government. Being skilful men, they built their old fort very strongly. The measures of that fort, as now found, are from south to north 1141 feet, east to west 1200 feet. The breadth of its outer wall was 20 feet. Around it there was a moat thirty feet broad. Besides this outer one, there was an inner fort and a palace on the top of the hill.

The upper fort was east to west 250 feet, south to north 195 feet. While ruling with considerable power they rejected all claims of customary tribute from superior kings. They were both illustrious ; but *Candava-rayen,* was the most warlike of the two. He fixed alarm-stations, on eminences at certain distances around his capital. There was no other king like him. When the *Rayer* came to invade him, as the drums were beaten at different hill stations the *Rayer* did not know in which the chief was ; and at length the latter watching his opportunity fell on the *Rayer's* forces, and made great slaughter. The *Rayer's* General being greatly incensed came with a greater force ; and, during four months, an uncertain war was carried on, the chief's place not being known ; while night and day he harassed the troops of the invader. The *Rayer* now desisted from open war, intending to effect his

object indirectly. *Candava-rayen* then greatly vexed the agriculturists that *Adondai Chacraverti* had placed in the land. The *Vellazhar* in consequence arose in a body, and went to *Crishna-rayer* who sent the *Wiyalavar* (the people of a *Poligar*) against *Candava.* That Poligar being beaten, retreated, and sent spies to inspect the fortress, that he might discover how to overcome *Candava.* The spies discovered that in intervals of rest from war *Candava* was entirely enslaved by the leader of a band of dancing girls, and announced the circumstance to the chief of the *Wiyalavar* tribe. He came to *Cupachi,* and gave her the offer of four bags of gold, as a bribe to cut off the head of *Candava* ; to which, induced by avarice, she consented, appointed a time for the Poligar, and his people to come. They came as appointed. *Cupachi* gave *Candava* poison in a cake from her own hands, which speedily took effect. She cut off his head, and putting it in a dish brought it to the appointed place, and gave it to the Poligar people. After satisfying themselves of the identity of the head, they cut off the head of the traitress and went away. In the morning his younger brother *Chett'hu-rayen* hearing this news and being extremely grieved, took the hundred companions of *Cupachi,* and carrying them to a tank after tying them in a row like cows, he cut off their heads. In proof whereof that tank is to this day called *Pinnai-yeri* (the lake of corpses). He also burnt down their houses, and the place is to this day called *Cupachi kunnu* (the heap of *Cupachi*) and is a place of desolation. He also took the watchmen, who had neglected their duty, and cut off their heads at the above tank. The *Wiyalavar* Poligar came with his troops, and fell on the fort. During twenty-six days fighting was carried on with great loss on both sides ; till at length the attacking Poligar took the fort ; which after that time became a dependency of the *Anangundi* kings who protected the agriculturists.

The truth of the preceding narrative is attested by all the people living around about that neighbourhood.

Section 4. An account of the Pagoda of *Tiruvidaichuram* (the above fort) in the Arcot district.

The original date of this place is remote in antiquity ; the fane was built by *Kulottunga Cholan.* It was repaired by other *Cholas,* and *Rayers.* The *St'hala Purana* is lost. But the legend is to this effect, that as *Appar* and *Sundarar* (the poets) were on their way to sing the praises of *Karzkundam* (a hill fane) they enquired of a shepherd (at

this place) if there was any emblem of *Siva* near, who pointed them to one under a tree, and disappeared. Considering this as an apparition of *Siva*, they chanted ten stanzas concerning the place, which are in existence down to the present time. As the *Chola* king adorned and endowed this fane, there may be an inscription ; but it is reported to be in recondite Tamil. They further say that directly under the view of the bullock of *Siva* very much wealth is buried. There certainly is some wealth concealed. If well examined it would be found : it would not be needful to that end to damage the walls or structure of the temple ; but only to remove the flooring ; no other damage would accrue to the temple.

Section 5. An account of the ancient gold products of *Callatur*, and notice of the history of that place.

Anciently this was the second fortress of the *Curumbar* chieftains. After they had been destroyed by *Adondai Chacraverti*, the fort was in the hands of ten persons, who rode in palankeens, from among the *Kondai-Katta Vellazhar*. They were subordinates to the Raja, and regulated the country. A poor *Purohita* brahman came to the fane of *Tiruval-isvarer* and bought a piece of ground at *Callatur* : the god afterwards personally appeared to him, and instructed him to give the god notice when he ploughed and sowed the said field. He did so, when the god came on his *Vahana*, and after sowing a handful of seed disappeared. The other corn was sown by the brahman. The corn sprung up luxuriantly ; while corn sown by other people was very weak. The brahman's corn grew higher than a man could reach, but without earing ; to his great grief. A *Vellazhan* passing by, being struck by the singular appearance of the corn, plucked a stalk, and opening it at the top, found an incipient ear of gold ; in consequence of which he enticed the *Brahman* to an exchange of products, ratified by a writing. A long time after the corn threw out ears, and the surface presented a golden colour. The *rayer* of that time, named *Hari Hari Rayer*, hearing of the circumstance, came himself with an army, and having it reaped, distributed the gold, in the usual proportion of corn, to the cultivator, the proprietor, and the king ; the product was beaten out on a brick-floor prepared for the purpose. Such a floor is named *Callam*, hence the town came to be called *Pon-Velainta Callatur* or *the village where gold grew as corn*. Remains of the brick-floor are still to be seen ; and the circumstance is traceable in other names

of connected places. Some remains of the chaff of this harvest are said to be preserved in the treasuries of neighbouring temples. From the time of *Tondaman Chacraverti*, down to *Crishna Rayer's* time, this fort was under the management of the *Vellazhar*, or agriculturists. *Crishna-Rayer* demanded of them to build an *agrahuram*, which they refused to do; and he in consequence waged war against them with great slaughter for six months; when they consented to his request, and built two choultries, one of which was called by the name of *Crishna-Rayer*.

Historical Indication.—Divested of fable the probability is that a gold mine was anciently discovered in the field of a *Brahman*; and worked by one of the *Rayers*. The closing circumstance is within the range of credible tradition.

Section 6. Accounts of the places of hidden treasure in the Arcot district.

1. In *Paduvur*, there are four *Panta curzis*, in which they say treasure is contained.

2. In *Tiru-vidaichuram*, in a *Pedari kovil*, under the image of *Durga*, there is stated to be buried treasure. There is a sort of proverbial, enigmatical saying to this effect, current among the country people thereabouts. Notice of an account given to a servant (Gomasteh) of the Surveyor General, of seven vessels of buried treasure, and of a human sacrifice offered by some persons, who in consequence took away one vessel, and went to live at Wandiwash.

3. In *Neyamali*, they say there is hidden treasure.

4. Beyond that village near Chingleput the pagoda of Tiruvadesveren at *Callatur*, at *Cunatur*, *Vembacam* near Chingleput, *Uttara Melur*, and some other places, there is said to be buried treasure.

Remark. Perhaps Colonel Mackenzie's instructions to his agents included enquiries on the above subject: with one exception, as to the *Panta curzis*. I do not see that any light is reflected on past history by such traditions.

Section 7. Ancient history of *Tonda-mandalam* and its earlier inhabitants, called *Vedars* and *Curumbars*.

After the deluge the country was a vast forest inhabited by wild beasts. A wild race of men arose; who, destroying the wild beasts,

dwelt in certain districts. There were then, according to tradition, no forts, only huts ; no kings, no religion, no civilization, no books ; men were naked savages : no marriage institutions. Many years after, the *Curumbars* arose in the *Carnata* country : they had a certain kind of religion ; they were murderers ; they derived the name of *Curumbar* from their cruelty. Some of them spread into the *Dravida-desam* as far as the *Tonda-mandala* country. They are now found near *Uttra Melur;* but more civilized. They ruled the country some time, but falling into strife among themselves, they at length agreed to select a chief, who should unite them altogether. They chose a man who had some knowledge of books ; who was chief of the *Dravida* country, and was called *Camanda Curumba-prabhu,* and *Pulal-raja.* He built a fort in *Puralur.* He divided the *Curumba*-land into twenty-four parts, and constructed a fort in each district. Of these the names of ten are—*Puralur,* the royal fort, *Callatur, Amur, Puliyur, Chembur, Utthikadu, Kaliyam, Venguna, Icattukoltai, Paduvur.* While they were ruling, there was a commerce carried on by ships. As the merchants of *Caveripum-patnam* sought trading intercourse with them, the *Curumbas* built the following forts (stations) for trade : *Patti-pulam, Sala-cupam, Sala-pakam, Meyur, Cadalur, Alampari, Maracanam*; whence, by means of merchants from *Caveripum-patnam* and the *Curambar,* a commercial intercourse by vessels was carried on. They flourished in consequence; and while without any religion, a *Jaina* ascetic came and turned them to the *Jaina* credence. The *Basti* which the *Pural* king built after the name of that ascetic, is still remaining together with other *Basti,* and some *Jaina* images in different places ; but some are dilapidated and some destroyed, by the hatred of the *Brahmans.* They were similar to the *Jainas* of the present day. They were shepherds, weavers, lime-sellers, traders. While living thus, various kings of civilized countries made inroads upon them, as the *Chola* and *Pandiya* kings, and others ; and being a wild people who cared not for their lives, they successfully resisted their invaders, and had some of the invading chiefs imprisoned in fetters, in front of the *Pural* fort. Besides,they constrained all young people to enter the *Jaina* religion ; in consequence of which vexation a cry arose in the neighbouring countries. At length *Adondai* of Tanjore formed the design of subduing them ; and, invading them, a fierce battle was fought in front of the *Pural* fort, in which the *Curumba* king's troops fought, and fell, with great bravery ; and two-thirds of *Adondai's* army was cut up. He retreated to a distance overwhelmed with grief; and the place where he halted is still called *Cholan-pedu.* While thinking of returning to

Tanjore, *Siva* that night appeared to him in a dream, and promised him victory over the *Curumbas*, guaranteed by a sign. The sign occurred; and the *Curumba* troops were the same day routed with great slaughter: the king was taken, the *Pural* fort was thrown down, and its brazen (or bell-metal) gate was fixed in front of the shrine at Tanjore. A temple was built where the sign occurred; and a remarkable pillar of the fort was fixed there: the place is called *Tiru muli vasal.* A sort of commemorative ceremony is practised there. After a little more fighting, the other forts were taken, and the *Curambas* destroyed. *Adondai* placed the *Vellazhar*, as his deputed authorities; having called them into the country to supply the deficiency of inhabitants from the *Tuluva-desam* (modern Canara). They are called *Tuluva Vellazhar* to the present day. Some were brought from the *Chola-desam*, still called *Chola Vellazhar.* He called from the north certain Brahmans by birth, whom he fixed as accountants. The *Kondai Katti Vellazhar* were appointed by him. He acquired the name of *Chacraverti* from rescuing the people from their troubles. The name of *Curumba-bhumi* was discontinued; the country was called *Tonda-mandalam*; and common, consent ascribes to *Adondai* the regulation of the country.

Remark. The writing of the above paper was a little obliterated and I think its restoration of consequence; for it seems to me rather more important than these local papers usually are. We have in it a clear and unvarnished statement of the introduction of the *Hindus* (properly such) into the country, circumjacent with respect to Madras. The *Hindus* had colonized the country, south of the Coleroon at a much earlier period. The trading from *Caveripum patnam*; the conquest by *Adondai*; the introduction of *Brahmans* as accountants from the north; are matters confirmed by other papers. The *Vellazhas* of the country hold the traditionary belief that their ancestors, emigrated from *Tuluva.* The *Chola Vellazhas* are chiefly found in the south. They wear a lock of hair on the front of their head, not on the back, like other *Hindus.* The old *Tuluva* or *Hala Canada* language, and the Madras Tamil, are very nearly the same language.

Section 8. Account of a *Curumba* fort at *Marutam,* near *Canchi,* in the *Utra-melur* district.

This fort of mud was formerly built by the *Curumbas,* covering forty cawnies of ground, with two boundary-walls, and was long ruled by

them. In the time of *Crishna Rayer* his dependant, the raja of Chingleput, fought with them ; and after some time the *Curumba* chief was unjustly put to death. The *Carumbas* were destroyed, and *Timma raja* took that fort. He gave it as a *Jaghire* to one of his near relatives named *Govinda raja.* He built two *kovils ;* and established an *agraharam* for the *Brahmans.*

Note.—*Timma rayer* was the founder of Arcot as mentioned in a former paper.

Section 9.—An account of *Mathurantacam* in the Jaghire.

This place being the ancient boundary of the Madura kingdom, was called *Mathurantacam* (the end of Madura) and *Vada Mathurai* (the northern Madura). In proof of which there is an image called *Mathurai Chelli ammen.* There is also a very ancient *Saiva* fane. It is said that *Nala raja,* in his sorrowful pilgrimage, came to this place, and by taking the muddy water of that pool was cured of his leprosy. He built a temple there to commemorate his cure. The tank was called by him *Vishaga tirt'ha.* The *Chola raja* built many other sacred edifices in this place, and himself lived there for a considerable time. The *St'hala Mahatmya* of this place is connected with the *St'hala Mahatmya* of Madura.

Remark.—As the Madura Puranam contains a reference to the northern Madura, it is well to know the precise locality thereby designated. The reference to *Nala-raja* is an allusion to an episode in the *Mahabharata.*

Section 10. An account of the ruins of a fort with seven walls (one within the other) at *Avidu tangi,* written from verbal accounts given by Brahmans of *Pira-desam.*

In the Arcot district, not far from *Pira-desam,* are the extensive remains of a very ancient fort, of seven enclosures. It is now concealed by brush-wood, and lies waste. Gold-cash, and other coins, have been found there. Hyder Ally is said to have examined it, and taken thence treasure. It was built many years after *Tondaman Chacraverti,* by *Vira Narasimma raja.* He appointed a very stupid *Mantiri* (or minister). There was no investigation of affairs ; and this minister, buried the treasures, arising from the public revenues, and stultified

the king. A certain man, named *Viral-vennan*, was wounded on the head by a neighbour; and going to make a complaint at the king's gate, could get no hearing. He thereupon went about the town beating all he met; and, as there was no enquiry, he managed to get some money, and to raise a small band of troops, with whom he took post near a burning ground, and exacted tribute from all who came to perform funeral obsequies. By this means he became rich. After some time the king went out in disguise to ascertain the state of the town, and heard a poor woman complain of having no money to pay the tribute. He enquired into the tax, and then went to the *Mantiri* to ask why it was imposed, who could give no account of it. The king sent for *Viral-vennan*, who refused to come; whereupon some troops were sent against him: these were worsted, and then *Viral-vennan* came, sword in hand, of his own accord, and falling down before the king, narrated all his circumstances; whereupon the king had his minister beheaded, and put *Viral-vennan* in his stead. There is no other tradition at *Pira-desam*; but possibly by going to *Avidu tangi*, something further might be learnt.

Book No. 20.—Countermark 774.

Section 1. List of kings in the *Cali yuga.*

A few names, very defective, in the three first ages.

The *Cali yuga* list commences with *Janam-jaya*, and there are other names without distinction of place or country, though we know some of them to have ruled in places very distant from each other. *Rajendra Chola* is dated by an inscription in S. S. 460, *Deva-maha-rayen* by inscription S. S. 1060, *Virupachi-rayer* S. S. 1238, *Saluva Narasingha-deva-rayer* S. S. 1420, *Vira Narasingha-rayer* S. S. 1391, *Aurungzebe* S. S. 1554.

The list of course does not admit of being abstracted. A few dates and names are written as specimens. The list may be of use to refer to in comparison with other lists; and, as now restored from an almost illegible state, will admit of easy translation.

It is followed by another list of which the ink is so much faded as to be no longer capable of restoration. From a few names, which

can be read, it seems to be a fuller repetition; the same names appearing to occur, with now and then a name not to be here found; but it is not possible to make any thing of it as a connected whole.

There follows a page of illegible writing, endorsed, in English, as a letter; and another half page, of *Pandiya* kings, of no value.

Section 2. Account of the most ancient sages and poets, with their places and dates, in the *Dravida-desam.*

This section, with so promising a title, is a mere cheat. It has a few names of ascetics and poets, better known from other authorities; without the promised distinction of time and place; and, being quite worthless, the copying of it was omitted.

Section 3. A general list of books and inscriptions.

This list refers merely to certain parts of the papers, in the Mackenzie collection, supplied by the writer of the list; and is of no permanent consequence; there being a fuller catalogue in existence. The copying was omitted.

Section 4. Account of *Pradatta raja.*

The paper commences with a declaration ascribed to *Brahma* of the severe pain, and penalty, incurred by any one stealing, even an atom of property, from a fane of *Siva*; which, inclusive of minor matters, involves the being sent to *Yama-puram* (hell), and the being sunk in a stratum of fire. There are other details of the evils which must follow the taking a bit of gold from the temple at *Arunachellam* (Trinomalee); and of eating anything belonging to it, more fatal than eating poison. In illustration *Brahma* narrates an account of the visit of *Pradatta*, king of Benares and of the surrounding country, in extravagantly hyperbolical language, and of his becoming enamoured of one of the *Deva dasis*, of the fane at *Arunachellam* (or Trinomalee) in consequence of which his face was transformed into that of a baboon. Some of the great men said it was from an evil thought; and advised him to render special adoration to the image worshipped there; which he did and recovered a beautiful form. These circumstances *Brahma* related to *Sanaca-rishi.*

The entering on another narrative is announced, which appears to be the one contained in the following section.

Observation.—The preceding is probably part of a legend connected with the *Trinomali*-temple; and has been evidently constructed so as to impose a superstitious dread of taking any property from that place, or of coveting any thing belonging to it: it is very well adapted to the intellectual measure of the lower class of natives: it may illustrate manners and opinions; but, in any historical reference, it seems quite useless.

Section 5. Account of *Vajranga Pandiyan.*

The king of the fertile country on the banks of the *Vaigai*, one day set out on a hunting excursion, to the great terror of the elephants and other beasts, and in the course of the chase, he started a civet-cat, which ran directly for Trinomalee, and then went round the mountain, when it fell down from exhaustion and died; the horse (*ganavattam*) on which the *Pandiya* king rode, also fell down, from extreme fatigue and died. Immediately two *Vidhyadharas* (celestials) appeared and said to the king, " Why do you grieve? we were imprisoned in bodies through the malediction of *Durvasa-rishi*, from having trodden on some flowers in his garden; so that he commanded one of us to become a civet-cat, and the other a horse. On our asking when the spell would be dissolved, he said it would be by *Vajrangata Pandiyan.*" These two animals then attained final happiness, by the merit of having gone around *Arunachella*-hill (or Trinomalee); but as the king did not walk round, but went round on horseback, he had no part in the merit. He subsequently made over his kingdom to his son, named *Art'hanangata Pandiyan*, and became an ascetic, residing near the hill. His son sent him much money; with which he greatly added to the splendour and beauty of the fane. On walking round it one day, the god *Siva* met him, in a visible form; and told him that he also had been imprisoned, having heretofore been *Indra*, who threw his diamond weapon (*vajranga*) at him (*Siva*); in consequence of which he was condemned to live on earth as *Vajrangata Pandiya*; but that now from the virtue of his munificent acts to the temple, he should be re-admitted to his former state, and again become *Devendra.*

Observation.—The composition of this, like the former, is in poetical and hyperbolical language, but with incorrect orthography. A *Pan-*

diya king is otherwise understood to have repaired, and beautified Trinomalee, and on this circumstance the fable is constructed. It seems to be a portion of the Trinomalee *St'hala-purana,* as may be ascertained when that *Purana* comes to be examined. But it is of little use beyond illustrating native opinions, and was restored because found in a book greatly damaged by time; though, in itself, this section remained quite legible.

Section 6. A list of *Chola* kings.

The list consists of a few names only, without any dates: the transcribing them has not appeared to be of any importance.

Preface to the first part of the History of India, composed by *Narayanen* astronomer (of the *Ananta Kon* race).

(This is not entered in the table of contents at the beginning of book No. 20).

This book was written at the request of Col. W. Macleod of Arcot, during Lord Bentinck's government of Madras. After the usual poetical invocation it gives an account of the cause of its being written; the different powers and kingdoms to be included; and the authorities consulted in the compilation. The work proceeds to narrate the creation of the elements of all things, by *Narayanen*; the formation of the *Brahmandam,* or mundane egg; and the division therein of the orders of beings and things. An account of the different *yugas.* Formation of gods, *asuras,* and mortals. *Avataras* of *Vishnu,* eclipses, fasting at that time peculiar to India. After some Indian astronomical details, the writer states his preference of another system, that of the earth turning on its own axis, and revolving round the sun, with different length of days in different latitudes; (evidently derived from intercourse with Europeans), geographical divisions of India, on the native system: some mention of Nipal, Moghulistan, Turkistan and Hindustan proper. This leads to mention the birth of *Crishna,* about one hundred years before the end of the *Dwapara yuga,* and his reigning in *Dwaraca,* a town which he had built on the sea shore. The end of the first book.

The foregoing is another copy, so far, of the large work entitled *Carnata rajakal,* before abstracted. Should other *Candams,* or books, be found among the paper MSS. the whole MS. may be restored; but the above is of no special use, being merely another copy of a portion which exists in the larger work.

Section 7. Account of the *Jain* temple of *Parsvana natha Svami* at *Tirunarrayanen Conda* village, in the district of *Yelvanachura Cottai.*

It is in the *Vriddhachala* district: a *St'hala mahatmya.* 'In a certain wilderness a kind of roots grew which *Vedars* dug up for food. One day a man of that class saw some growing in the cleft of a rock, and going to dig them up, discovered the image of the above god. A winged creature also appeared, at which the hunter, being dazzled, exclaimed "Appa! Ayya!" The being said "I am Appa, and Ayya is in that image." The hunter asked for a spiritual vision, and had one enlightened eye given him; the report of the circumstance led to much discussion among the country people who on consulting, noted various marks about the hills, and concluded that it must have been a place of residence for ancient ascetics. The king of the country, coming to knowledge of these things, treated the hunter handsomely, and had a temple built on the spot. There is then a narrative given, as having happened before this circumstance, to account for the image being found there. This forms a *Jaina* version of the *Pandiya* king renouncing the *Jaina* system for that of the *Saivas.* By this account the famous *Appar* was born and bred a *Jaina;* but through ill-treatment of the head ascetic of that system, he went away to the south by way of the *Chola* kingdom, and became a *Saiva.* In consultation with *Sampantar* and *Sundarar* a plan was formed to convert the *Pandiyan* king. *Appar* by the power of incantations inflicted on him a grievous illness; and then sent *Sampantar* and *Sundarar* with the *Viputhi,* saying that if he accepted these he would be cured. He replied that being a *Jaina,* he could not do so. On their returning with this answer to *Appar,* the latter inflicted severer pain on the king; and then went personally to him, and said that if his teachers could remove one half on one side, he would remove the other. The *Jaina* teachers, being sent for, said that to use magical incantation was contrary to their religion. *Appar* then promised to cure the king; to which he consented, through the craft of *Appar,* and because an evil time for the *Jaina* system was come. After being cured, *Appar* asked of the king to allow all the *Jaina* temples to be turned into *Saiva* ones, at which he hesitated; but at length, being gradually overcome, and through previous ignorance of his own system, he was drawn over to become a *Saiva;* and he then gave a body of troops into the hands of *Sampantar, Sundarar,* and *Appar,* with which they displaced the *Jaina* images, and turned the fanes into *Saiva* ones. But on coming to the

hill, in question in this paper, as soon as *Appar* ascended three steps towards it he was struck blind. Astonished, he offered some prayers according to his *Jaina* knowledge, and had one eye restored; he then resumed the *Jaina* way, and had both eyes restored. The *Saivas*, seeing what had occurred, carried him off, and in a brick and chunam water-course, near to *Chillambram*, killed him. The account closes, as being given by persons who had received it downwards by tradition.

Remark.—The leading fact is historical; and every version of it, especially from opposite religious parties, may render it better defined.

Section 8. Chronological tables of the *Hindu rajas* (termed *Jaina* kings of the *Dravida* country in the table of contents of book No. 20).

A few names of kings in the first age: a few names of the solar line in the second: a few of the lunar line in the third age: in the fourth a mixture of names, one or two of them being *Jaina*. *Chandnagupta* is teermd a *Jaina*. The *Chola rajas*. *Himasila*, a *Jaina* king. In the list of *Rayers*, there are some names, not usually met with in those lists. Some dates of these, and of *Chola* kings, are given; the list comes down to a modern date.

A list of kings in *Grant'ha* characters is given, termed *Jaina* kings.

Remark.—These lists, though imperfect, may have some use for occasional reference.

Section 9. Legendary account of *Canda Cottai* (and statement of an emigration of artificers from India, by sea, eastward).

In the town of *Manda* anciently the *Camalar* (artificers of 5 sorts) lived closely united together; and were employed by all ranks of men, as there were no artificers besides them. They feared and respected no king, which offended certain kings, who combined against them, taking with them all kinds of arms. But as the fort in which the *Camalar* lived was entirely constructed of loadstone, this attracted and drew the weapons away from the hands of the assailants. The kings then promised a great reward to any who should burn down their fort. No one dared to do this. At length the courtezans of a temple engaged to effect it and took the pledge of betal and areca, engaging thereby to do so. The kings greatly rejoicing, built a fort opposite, filled with such kind of courtezans, who by their singing, attracted the people from the fort and led to intercourse. One of these at length

succeeded in extracting, from a young man, the secret, that if the fort were surrounded with *varacu* straw set on fire, it might be destroyed. The king accordingly had this done; and in the burning down of the fort, many of the *Camalar* lost their lives; some took to ships belonging to them, and escaped by sea. In consequence there were no artificers in that country. Those taken in the act of endeavouring to escape were beheaded. One woman of the tribe, being pregnant, took refuge in the house of a *Chetty*, and escaped, passing for his daughter. From a want of artificers, who made implements for weavers, husbandmen and the like, manufactures and agriculture ceased, and great discontent arose in the country. The king being of clever wit, resorted to a device to discover if any of the tribe remained to remedy the evils complained of. This was to send a piece of coral, having a fine tortuous aperture running through it, and a piece of thread, to all parts of the country, with promise of great reward to any one who should succeed in passing the thread through the coral. None could accomplish it. At length the child that had been born in the Chetty's house undertook to do it; and, to effect it, he placed the coral over the mouth of an ant-hole, and having steeped the thread in sugar, placed it at some little distance. The ants took the thread and drew it through the coral. The king seeing the difficulty overcome, gave great presents, and sent much work to be done; which that child, under the counsel and guidance of its mother, performed. The king sent for the Chetty and demanded an account of this young man, which the Chetty detailed. The king had him plentifully supplied with the means especially of making plough-shares, and having him married to the daughter of a Chetty, gave him grants of land for his maintenance. He had five sons, who followed the five different branches of work of the *Camalar* tribe. The king gave them the title of Punchayet: down to the present day there is an intimate relation between these five branches, and they intermarry with each other; while as descendants of the Chetty tribe, they wear the *punnul*, or caste-thread of that tribe. Those of the *Camalar* that escaped by sea are said to have gone to China. It is added that the details of their destruction are contained in the *Calingatu Bharani*.

Remarks.—There is no doubt historical truth covered under the veil of fiction, and metaphor: it is particularly desirable to know if artificers really emigrated from India to the eastward. The ruins of *Manda* or *Mandu*, remain without any records concerning that place, I believe, in any known history. The *Calingatu Bharani* a poem is in the Mackenzie collection, and will come under notice hereafter.

Section 10. Account of the *Curumbars*, and a massacre of them by treachery.

Under the *Rayers'* government the *Curumbars* ruled in many districts. They constructed forts in various places. They tried to make the *Muthaliers* aud *Vellazhars* render them homage, to which the others did not consent; and the *Curumbars* in consequence greatly troubled them. Still they did not submit. Accordingly in betel gardens, and in many other places they constructed very low wicket gates, so that the *Hindus*, coming to them, must be forced to bow on entering. But the *Muthaliers* and *Vellazhars* instead of entering head foremost thrust their feet in first, and thus treated the *Curumbars* with contempt. As the latter had power in their possession, they vexed the said tribes. These at length went to a barber; and, promising a gift of land, asked of him counsel how to destroy the *Curumbars*. The barber gave them encouragement: he then went to the houses of all his tribe, and engaged their services by promise. It was the custom of the *Curumbars*, that, if one of their people died, the whole family should have the head shaved. One of the seniors of the tribe of *Curumbars* died, and by custom the whole tribe at one time sat down to have their heads shaved. The aforesaid barber, on this occasion, charged all his associates each one to kill his man, which they did by each one cutting the throat of the person shaved. The women, thus suddenly widowed, had a great pile of fire kindled, into which they leaped and died, execrating their enemies. The ruins of the *Curumbar* forts and villages are still visible, being heaps of mould : there are very old wells—some for instance near Sadras; the bricks of these wells have an appearance of great antiquity.

Remark.—What credence is due to the tradition I cannot tell; if true, it adds another instance to the tragedies consequent to sectarial hatred; and effected by stratagem, and treachery; which are numerous in this collection.

Section 11. Account of the *Wiyalvar*, or *Multilyar*, at *Nerva-palliyam.*

The *Curumbars* in the time of the *Rayers* built forts, causeways, &c. In that time these *Wiyalvar* came from *Ayodhya* in the north. They brought with them two tutelary goddesses, called *Angalammai* and *Wiyalammai* together with attendants (as supposed of these idols). These first halted at *Virapuram.* At that period one *Chennapa*

Nayak was acting with great violence, and killing many people. The *Rayers*, in consequence, promised to this new tribe, that if they would remove the nuisance he would give them the district, so cleared, as their reward. In consequence, by the power of their goddess, they took those robbers, and having obtained the district of *Chennapa nayak*, they first gave it the name of *Canda gadi palliyam.* Subsequently as the *Curumbars* gave much trouble, and insulted the *Muthaliers*, the *Rayer* made great promises to these *Wiyalvar*, if they would destroy the *Curumbars.* The *Wiyalvar* in consequence by the aid of the *Rayer's* troops, and a thousand men of their own, destroyed the *Curumbars.* The *Rayer* gave them great distinction for the same, and some villages. They established their goddesses in two villages, and in one had also a *Vaishnava* fane. They built a palace which afterwards they sold to discharge a debt.

Remark.—This account may be compared with another book, and section, making mention of the *Wiyalvar* ; and this tradition, if true, adds to the proof that the earlier inhabitants of the Carnatic were destroyed, to make way for colonies of *Hindus.*

Manuscript book, No. 5.—Countermark 759.

Section 1. Account of the Zemindar of *Emakalapuram* in the Dindigul district of the Coimbatoor province.

(Stated to be copied from an original palm-leaf account).

During the rule of the *Rayer* in Cal. Yug. 4520 Sal. Sac. 1341, " my ancestors" were of the *Camavar* tribe, and *Camulaca nayaker* lived at *Devanampatnam* near Cuddalore, being headman of the district. At that time the *Rayer* had an unmanageable horse, which no one could govern till the aforesaid *Camulaca* going to the capital taught the keepers how to control the animal ; and he himself mounting the horse rode out with it, for three days together in the most unfrequented places, and brought it back before the *Rayer*, on the fourth day, perfectly quiet. The *Rayer* was so well pleased that he gave the headman the title of the horse, adding other titles, and distinctive banners ; and relinquished the district at Cuddalore to him in free gift, therewith dismissing him. At the time when *Visvanatha Nayaker* was sent to take possession of the *Pandiya* kingdom, the aforesaid *Camulaca* was ordered to accompany him, and afford aid. The household god of *Ca-*

mulaca became an image at *Emakala-puram* where he settled. He received orders from *Visvanatha Nayaker* to furnish a quota of troops towards the charge and defence of the fort of Madura. Some disagreement occurring between *Kulasegara* and *Visvanatha*, the latter ordered the *Emakala puram* chief to go against the former, which he did, and after much fighting the former laid an ambush, so that *Camulaca nayaker* was shot as he was advancing with his people. *Visvanatha* had the funeral rites performed. His son was *Anantapa nayak*, who in consideration of the manner of his father's death, received additional distinctions and some villages in free grant from *Visvanatha nayaker*. At the time when the seventy-two chiefs each had a bastion of the Madura fort confided to him, this chief was appointed to the seventh bastion. He died after a chieftainship of thirty years. *Camulaca-nayaker* his son succeeded, and ruled thirty-five years, fulfilling his appointed duties; but without any thing special occurring. His son was *Lagu maya nayaker*, and, as in the last case, died after a rule of seventeen years. *Anantapa nayaker*, his son, governed seventy-five years and died. *Camulaca nayaker* his son died after a rule of twenty-seven years.

His son *Lagu-maya nayaker*..........33 years.
7. *Anantapa nayaker*...........25 „
8. *Camulaca nayaker*.............65 „
9. *Lagu-maya*.....................30 „

Thus far there was a regular descent from father to son, ruling their own lands, without paying tax or tribute. *Anantapa* the son of *Lagu-maya*, ruled at the time when the Mysore ruler at Seringapatam conquered the Dindigul province, when a tribute was imposed of one hundred *chacrams*. *Anantapa* ruled twenty years. His son *Camulaca nayaker*, in the time of Hyder Sahib had an additional tax of fifty imposed; paying annually one hundred and fifty *chacrams*, and ruled twenty-one years. His son was *Anantapa-nayak*. In the time of *Meer Sahib*, his *Amil* named *Syed Sahib* doubled the tribute; making it in all 300 *chacrams*. "I myself *Lagu-maya nayaker* who am his son, for some years had the lands without tribute. Subsequent to the rule of the Honourable Company over the Dindigul province Mr. Commissioner Macleod fixed my tribute at four hundred and fifty *chacrams*. It was afterwards raised to one thousand six hundred and twenty *chacrams*, which was paid during eight years. Afterwards in consequence of not paying the tribute the Honourable Company assumed the district, and my petition is that the Honourable Company will shew me favour and protect me."

Section 2. Account of the Zemindars of *Dottiya* fort (copied from a palm-leaf account).

At the time when the Padshah came against the *Rayer*, before the capital was taken the *Rayer* sent out red garments with the message that so many as were willing to leave their families should put on those garments, and prepare for war. My ancestor *Macala nayaker* of the *Penjai valla* tribe, with his people assembled; and after defeating the invaders came to the *Rayer's* presence. The *Rayer* being greatly pleased honoured him with various insignia of favour; and directed my ancestors to build a fort 30 miles due west of Madura: in consequence of which a mud-fort, named *Dottiya-cottai* was formed. Two of the tribe were *Bommana nayaker* the elder, and *Bettalu-nayaker*. The eldest governed for twelve years. The second in succession *Bettalu-nayaker*, cleared away some waste lands. But as he was very young, and the country was that of the *Kallar* caste, he did not find himself at ease there. At that time *Vira sec'hara Cholan* having invaded the country of *Chandra-sec'hara Pandiyan*, the latter being unable to resist, went to the *Rayer*, who sent with him *Nagama nayaker* to reinstate him in his possessions. *Bettalu nayaker* accompanied the *Pandiyan* to the *Rayer* expecting if the *Pandiyan* were restored, that his own district would be secured to himself. But in consequence of *Chandra-sec'hara*, having only five illegitimate sons, he made over his kingdom to *Visvanatha-nayaker*, and *Bettalu nayaker* derived no benefit from waiting on *Chandra-sec'hara*. At a later period when *Visvanatha-nayaker*, in conjunction with *Ariya-natha-Muthaliar*, had fixed appointments to bastions of the fort, in reply to a petition my ancestors were confirmed in the possession of the *Dottiya* fort and lands. Subsequently when the king went to fight against *Kayattáttur*-fort *Bettalu-nayaker* was appointed to guard the royal tent; for his service on which occasion he received some acknowledgments. A tribute was fixed of one hundred *chacrams*. He ruled thirty-five years. His sons were *Bommalu Nayaker*, the eldest, and *Chinduma-nayaker* the younger. *Bommalu* was the third in succession and ruled twenty-two years. The fourth in succession was *Bettalu-nayaker*, who ruled thirty-eight years. His tribute was 153 *chacrams*.

5th Bommalu Nayaker	ruled	20	years paid	150	*chacrams.*
6th Bettalu Nayaker	,,	27	,,	150	,,
7th Macala Nayaker	,,	26	,,	200	,,
8th Chinduma Nayaker	,,	27	,,	200	,,

9th Bettalu Nayaker. In his time *Ramapaiyan* general of *Tirumala*

Nayaker, being about to proceed against the *Setupati* called for the said *Bettalu-nayaker*, and gave him orders to construct with his people a bridge at the Straits of *Pamban*, which bridge was built with great labour, so that the entire army passed over to the island of *Ramesvaram*; and, the *Setupati* being conquered, *Bettalu-nayaker* received honourable notice for the great trouble which had fallen to his share. He ruled fifty years.

The 10th *Bommalu nayaker*, younger brother of the preceding, ruled thirty years, paying 300 *chacrams* as tribute. His son *Macala-nayaker*, was called on to attend *Choka natha-nayaker*, in the war against *Vijaya Raghava* of Tanjore, and received a front wound in that war. He ruled 25 years paying 300 *chacrams*. The 12th in succession was *Bettalu nayaker* who ruled 24 years, paying 300 *chacrams*.

13*th* *Bommalu nayaker*	27	„	„	500 „
14*th* *Bettalu nayaker*	13	„	„	500 „

This tribute was paid to Meer Sahib.

15*th* *Bettalu nayaker*	5	„	„	„ „

16*th* *Bommalu nayaker* was his younger brother. In the time of Syed Sahib he paid 700 *chacrams*. In the time of Commissioner Macleod, an additional hundred was imposed; in all 800 *chacrams*. In the time of Mr. Wynch the same. In the time of Mr. Hurdis the same. After the measurement by survey, the tribute was raised to one thousand two hundred and fifty-six *chacrams*. The country, in consequence, becoming ruined he sold his personal effects, the proceeds of which were paid into the Court of the Collector Mr. George Parish. He ruled 40 years. The 17th in succession is myself *Chinnala nayaker*; and, paying my tribute into the treasury of the Collector Mr. Rous Peter, I continue to obey the orders of the Honourable Company.

Section 3. Account of the Zemindars of *Tavasi medu*, in the Dindigul district.

(Copied from a Palm-leaf Manuscript).

Before our ancestors came to the possession of this *palliyam* (feudal estate) they were resident in the province of Gooty. In consequence of the Mahomedans demanding our women, we abandoned jewels and other property, and came to the *Pandiya* country in the south. When impeded by a deep and rapid river we applied to our gods, and a *Punga* tree was caused to incline over the river, so as to enable us by its means to cross over to the southern side. Being followed by

the Mahomedans to whom we had refused to give wives, the tree before they came up recovered its usual position, so that from inability to cross the river they returned. The whole of the emigrating body proceeded till they came to a small hill to the north west of Madura; at the foot of which they took up their encampment. *Chotala nayak*, the headman, placed a light (in token of divine homage) and continued day and night in severe penance, directed to his tutelary god. The latter visibly appeared, and directed him as the reward of his penance, to clear the country around, to take it in possession, and to build a town on the spot where he had performed penance; to be called, in commemoration of that penance, *Tavasu-medu* (or the hill of penance). Subsequently during the disagreement between *Nagama Nayaker* and *Chandra sec'hara Pandiyan*, the former while proceeding by way of Dindigul towards Pyney to visit the shrine at the latter place, was taken ill; in consequence of which it occurred to him that if he called the aforesaid penitential headman, this person would be able to cure the disease. Being sent for he came, and, putting *Viputhi* (or sacred ashes) upon the patient, cured him. In consequence *Nagama nayaker* gave him permission to clear away land, build a town, and call the place *Tavasu-medu*, therewith dismissing him. At a subsequent period, when *Visvanatha nayaker* and *Ariya natha muthaliyar* went to fight against *Kayattattur*, they called *Chotala nayak* and he was appointed to guard the viceroy's tent. *Chotala nayak* fell in the battle. The second chief, son of the former was named *Raghu rama Chotala nayak*. He ruled 42 years. The third son of the last, and bearing the same name, had charge of one of the bastions of the fort of Madura, and ruled 49 years.

4th of the same name ruled 50 „

5th same name 2 „

6th *Pona sami Chotala-nayak* 10 „

7th *Raghu rama Chotala-nayak* son of the last was called upon to accompany *Ramapaiyan* in the war against the *Setupati* during the time of *Tirumala nayakar*, of Madura; and, on the return from that expedition, was dismissed with presents: he ruled 42 years.

8th. *Chotala nayaker* ruled 40 years.

9th. *Raghu rama Chotala nayak* was called upon to guard the tent, and to accompany the expedition against Tanjore, from which returning victorious, he was dismissed with presents: while obeying orders from Madura he ruled 45 years.

10th. *Chotala nayaker* 33 years.

11th. *Raghu rama Chotala nayaker* 30 years.

12th. Same name, 19 years.

The whole of the preceding twelve were sons in direct succession. With the mention of the name, and rule, of the twelfth the writing abruptly concludes.

Section 4. Account of the Zemindars of the *Palliyapa nayaker* race, in the Dindigul district.

Our ancestors were of the *Penchai* district. In Sal. Sac. 1357 : Cal. y. 4536, *Wali Sahib* the officer of the Delhi Padshah, invaded the *Rayer's* capital. *Valla'la maki Nayaken* was summoned ; and, going against the invaders, returned victorious ; on which account the *Rayer*, being pleased with his services, gave various honorary distinctions, and villages in the south. He fought with the *Vedars* and *Kallars* of those districts, and put them to the edge of the sword. He ruled there 33 years. His son was named *Lakaman nayaker* who ruled 42 years. *Vallála maki nayaken* 15 years. This same person went to Madura and had an interview with *Chandra sech'ara Pandiyan*, when his tribute was settled at one hundred *chacrams*. It is then again added that he ruled 19 years, but his son is most probably intended. His son was *Cama Nayaker*. His son was *Yettama Nayaken* who ruled 23 years. His son was *Palliyapa Nayaken* who paid 100 *chacrams* and ruled 41 years. This chief built a mud fort, also a *Vaishnava* fane and a porch to *Ganesa*. His son was *Canacala Nayaker*, who built an aqueduct for the better irrigation of the lands of several villages, and ruled 38 years. His son was *Cottama nayaker*, who at the time when *Visvanatha nayaker*, the son of *Cottama Nagama Nayaker*, came to the government of Madura went thither and had an interview with that viceroy, at which interview the yearly revenue was settled at 200 *chacrams* ; and *Cottama nayaker* returning to *Allipuram*, ruled 38 years. His son was *Palliyapa nayaker*. His neighbours *Ammaiyapa nayaker* and *Vali Kondama nayaker* wrested from him two villages, the former took *Vechandiyur*, the other took *Chettiyam patti*, with its reservoirs of water. *Palliyapa nayaken* paid 200 *chacrams* as tribute, and ruled 41 years. His son was *Chacala nayaken*. A famine arose ; in consequence of which the whole tribe took refuge with the *Virupacshi* chief. He had before wrested from them some villages, and they pledged to him *Alli nagaram* for sixty *calams* of millet, which they were subsequently disposed to repay ; requesting that place to be restored to them ; which request was refused. *Chacala nayaken* ruled 21 years. His son was *Anavara nayaker* who paid his tribute of 200 *chacrams*, and ruled 27 years. His son was *Bodi nayaker*, who made several improvements

for the better irrigation of the villages of his district. In the time of *Vencata Rayer* he went to an interview with that chief at Dindigul; and he was there required to pay 300 *chacrams* as tribute. He ruled 45 years. His son was *Bommala nayaker*, who paid the same tribute to the same place, and ruled 41 years. His son was *Canchi Várada nayaker*, who paid his tribute, and ruled 41 years. His son was *Chacala-nayaker* : Meer Sahib then ruled at Dindigul, and raised the tribute to 700 *chacrams*. When Syed Sahib ruled he raised the tribute to 1000 *chacrams*. *Chacala nayaken* ruled 39 years. His son *Palliyapa nayaker* succeeded, paid the same extent of tribute, and ruled twenty-five years. The Dindigul province having come under the government of the Honourable Company, the aforesaid tribute of one thousand *chacrams* was paid during the Collectorships of Messrs. Macleod, Rankin, and Wynch. In the time of Mr. Hurdis the same. "In the Nala year I paid seven hundred, and being unable to pay the other three hundred, my district was assumed, and Mr. Hurdis protected me by giving me an allowance of sixty rupees monthly." The lands were surveyed by measurement, and it would appear as if a committee investigated the subject, in the time of Mr. Parish, adjusting the tribute at the rate of five hundred and sixty-one *chacrams*. The account is written by the grandson of the beforementioned *Palliyapa nayaker*, bearing the same name. He dates his accession in fusly 1221, with the mention of which date the writing concludes.

Section 5. Account of the Zemindars of *Succampatti*, in the Dindigul province.

(Copied from a palm-leaf Manuscript).

The same origin from the north : the founder of the race served with *Visvanatha nayak* against the Mahomedans, and was sent down to the *Pandiyan* country. One of the chiefs fell in the struggle against an illegitimate son of the *Pandiyan*. On this war there are some things in the document worth consulting. The war against the *Setupati*, and against Tanjore are also noticed. For the rest the minute details much resemble the preceding.

Section 6. Account of the Zemindar of *Ammaiya nayak palliyam*, in Dindigul district.

This account is copied, it is stated from records written on copper, and carefully preserved by the family. It indicates alike origin with

the other preceding chiefs from the north, and has much minuteness of detail concerning the different chiefs; with some notice of the discovery of an image, and founding of a fane, whence the chief derived his title. For the rest the account does not contain the mention of new, or commanding, events.

Section 7. Account of the race of *Copaiya nayak* Zemindar, in Dindigul district.

The origin from the north: they were sent to the south to assist in collecting the *Rayer's* tribute. They were established in the town, named after *Copaiya nayak*, by *Visvanatha nayaker*, and had charge of one of the bastions of the Madura fort. Like the preceding they came under the My sore government, after the Mysore conquest of Dindigul province. There is however nothing special added to the details of leading events before given.

Section 8. Account of the race of *Culapa nayak*, Zemindar of *Nila cottai* in the Dindigul district.

The account commences with the summons of the *Rayer*, given by sending round red-garments to raise troops, to resist the Mahomedans. The repulse of the first hostile manifestations of the Mahomedans, induced the *Rayer* to present the founder of this race with various honors, and to send him down to the south. He represented that the country was so wild, and unsettled, that he wished to have it for ten years free of tribute. The assumption of the *Pandiya* kingdom, the war against *Kayattatur*, where the five illegitimate sons of the *Pandiyan* were conquered, appear as before. The thirteenth chief *Culapa Nagama Nayaker*, was an author, and composed the moral work entitled *Viravidu duthu*, (said to have been printed by a native at Madras). Conquest of Dindigul province by Hyder Ali mentioned. Nothing else very particular; except the assumption of the *Palliyam.*

Section 9. Account of *Carupa Tambiran*, Zemindar of *Cottai-kadu-oduccam*, in the Dindigul province.

This *palliyam* (or feudal estate) had its origin at a somewhat later date than the preceding ones, and was founded by a *Tambiran*, or one of the class of ascetics. The account is very destitute of incident. It is illustrative of opinions and manners.

Section 10. Account of the race of *Bodi nayak* of the Dindigul province.

The account commences with the destruction of *Vijayanagara* by the Mahomedans, when the ancestors of this race fled towards the south. The first of the race purchased his estate from an ascetic, who had before held it by a grant from one of the earlier *Pandiya* kings. In the reference made to the former possessor there would appear to be some illustration of the hog-hunting, which figures in the Madura *St'hala-puranam,* as attended with important consequences. Nothing very special appears in the subsequent history of the various chiefs, or possessors of the estate.

A petition to the Honourable Company to repair a certain *annicut* (or water course) follows ; of no permanent consequence.

There is copy of an inscription commemorating a grant of land from one *Condama Nayak* to a *Brahman.* Also copy of another inscription commemorating a gift of land by *Appaiya Nayaker,* a poligar to a female slave of a *Vaishnava* fane.

These three last documents are not reckoned in the list of contents of the book, and seem to have been pasted in after the book had been bound up.

Section 11. Account of *Periya Muttu Samiya-nayaker* of the *Devaram-palliyam* in the Dindigul district.

The *Mahratta* did not pay tribute to the *Padshah* ; when the latter directed the ancestor of this Poligar to go against the *Mahratta* ; and, as the doing so was attended with success, the *Padshah* rewarded the chief with honours and distinctions, The *Padshah,* passing one day near the latter's residence, demanded one of the females of the tribe in marriage ; threatening to take away the same person by force, if refused. An evasive answer was given—and the account abruptly breaks off. The inference is, that the tribe fled to the south to get away from the Mahomedans, as mentioned (Section 3d) in the account of a foregoing chief.

Section 12. The local legend of the fane of *Comba-palliyapattu* in the Coimbatore province.

A legendary account of a fane to which at first a *Sudra* was hierophant ; but which, acquiring celebrity from some alleged cures of people who had been blind, obtained afterwards a *Brahman,* as officiating

ceremonialist. Except as illustrating native manners, and opinions, the section has no special value.

Section 13. The local legend of the fane of *Ranga nayaker,* in the *Devaram* feudal estate.

A peasant struck against a stone while going on his work and fell; on which being angry he was going to break the same, by which means it was discovered to be an emblem of *Vishnu*; and, a fane being built over the stone, it became in some degree celebrated; but falling into decay, at the prayer of some devotee for rain a form appeared saying that if the shrine were honoured as it used to be, then there would be rain. Nothing further is added.

An account of *Choli-mali-alagar* fane in *Devaram* feudal estate.

A boy of the ordinary people named *Carupen* was frightened and chased by a spectre, which circumstance he narrated to the village people; who, recognizing the spectre to be an appearance of *Alagar* (*Vishnu*) came and saw the place, and afterwards built a fane in commemoration of that appearance.

Section 14. Account of the fane of *Kalatesvarer* in *Uttama-palliyam* of the Dindigul district.

A person had been accustomed to go as far as *Calastri* on pilgrimage; but one day a form appeared and told him it was not needful to take so much pains in going so far; that underneath a tree, pointed out, there was a form of the same god, which could be there worshipped. A fane was built there, which a trader afterwards enriched by a considerable donation, and it was enlarged and ornamented.

Section 15. Account of the different fanes in the *Uttaman Palliyapet* district.

It was anciently a teak forest visited by the five *Pandavas,* and by them considered to be an excellent country, whence the term *Uttaman,* signifying "excellence." There follows some other matter, concerning *Nila Candesvara* fane, so evidently fabulous as not to merit much attention.

Copy of an inscription on the fane of *Callastesvarer* in *Uttama palliyam.*

It is dated in the reign of *Mangamal* of Madura, in the Cali yuga year 4794, and in Sal. Sac. 1415. (In the latter date there is an error, the

figure 4 must on the inscription itself be 6, as appears both by the known period of *Mangamal's* rule, and the date of the Cali yuga era which is correct: we must by consequence read Sal. Sac. 1615). It commemorates a gift of land to the fane, and is of no importance, as belonging to so recent a period.

Copy of an inscription on copper plate in the same fane.

Dated Sal. Sac. 1655 in the time of *Bangara Tirumala Nayaker.* It commemorates a gift of two pieces of land to the said fane in perpetuity: and those who pervert the gift from the fane are threatened with the severest visitation for the crime.

The *St'hala purana* of *Pulavinesvarer svámi.*

The legend is very brief: among other things it appears that the images having been destroyed, the god appeared in a vision to a ruler, and said, that next day an ark would float down the stream, in which would be found a female image, which must be consecrated and placed in the shrine. The box came down the river, having a female image, with some citrons, and other fruits; and the consecration took place. The names of *Vira Pandiyan*, and of *Vicrama Pandiyan* appear in the legend; but both names may be merely titular. No mention of any date occurs.

Memorandum of a gift of an *agraharam* (or *Brahman*-alms house) made by one named *Narasapaiyar.* The place was called *Narasapabhupala Samudram.* The recorded documents perished by fire.

Legend of the *Surab'hi* river.

In consequence of the penance of an ascetic, *Siva* came to the wilderness, where the said ascetic resided; who, asking that a river might be caused to flow through that wilderness, *Siva* directed *Surab'hi* (or *Camadhenu*) the cow of the gods, to be metamorphosed into this river, which accordingly took place; certain marvels occur there, and the beating of drums, and sound of other musical instruments, are heard there at midnight. As the river flows from a rock, so any thing which falls into it becomes petrified.

Legend of the village called *Cambam.*

A man selling bracelets passed by an ant-hillock at this place, where a female stood, who asked him to affix a pair of bracelets: while doing so, two other arms appeared, on which two other bracelets were placed, and she directed him to go and get paid by *Paracrama Pandiyan*, who not only complied, but built a shrine over the spot where the goddess

had appeared. In later days a Poligar built a town near the place; and, at a still later period, *Kothaiverma-raja* built a town and a fort in the neighbourhood.

Legend of a place where a fair, or general market of commodities, used to be held, but long since disused. It is to the south of the last mentioned town called *Cambam*, and south of the river *Surab'hi*. The legend amounts to little or nothing: but the situation on the borders of the ancient *Pandiya*, and *Chera*, countries throws a feeble gleam of light on the extensive commerce which anciently took place between those countries, encouraged by the intercourse of European traders with the Western coast.

Legend of *Pashu-mali* or the cow-mountain.

A cow-herd, not finding food for his cattle, drove them to the foot of this hill: and then, ascending it, chose a cool station for rest. One cow strayed a long way from the herd, and at a forest-pool met a hungry tiger. The cow pleaded that it wanted to go and suckle its calf, and after the security of an oath that it would return, the tiger permitted it to go. The cow went for its calf, and met a snake by the way, to whom it told the tale, it then brought its calf, and the snake to the tiger; but the tiger struck with such a display of veracity refused the meal. The cow remonstrated in vain. At length *Siva* came by, disguised as a *Brahman*, when the cow ran at him; but evading, he disappeared, and returning with *Parvati* and the thirty-three *crores* of celestials, he gave beatitude to the cow, to its calf, and to the snake. The mountain acquired the name of *Pashu-mali*. (This inane legend is either purely such, tasking credulity to the utmost, or else it is a fable, couching some other circumstances under the veil of symbols; but if so, there is no clue to the precise meaning).

Copy of an inscription on the fane of *Kudal Alagiya Perumal*, in the Dindigul district.

Dated in Sal. Sac. 1591. *Collam* era 844, gift of land, by one named *Kulasec'hara Perumal*, with a strict injunction that the gift be not perverted to any other use, than the service of the said fane.

End of Book No. 3.

General Remark.—It was not my intention to take up the accounts of Southern Poligars, or local legends, at so early a period; but this book was found to be in so pitiable a plight from the paleness of

ink, and destruction effected by insects, that I gave it to a copyist, quite uncertain whether he could effect its restoration. This however has been accomplished, the sense being generally preserved; though with occasional breaks, of no great consequence.

The accounts of the Southern Poligars (of which the present may be accepted as a specimen out of many more) are useful, chiefly in giving a great variety of details, as to the subversion of the old *Pandiyan* dynasty by the power of the *Rayer* of *Vijayanagaram*; and the subsequent events of the Northern rule at Madura.

The local legends, herein contained, exhibit a state of society such as we should not imagine, without such testimonials. The precise national character, at any given period, can however only be certainly known by such documents.

Manuscript book, No. 21.—Countermark 775.

Abridged account of the *Vedas*, *Sastras*, *Puranas*, various temples, and books of general literature.

1. The four *Vedas*, and connected books.
The *Mimansa*, and later *Vedanta* books.

2. The *Upanishadas*, 32 in number—summary explanations of their contents, including the designation of the four leading divisions of castes among the *Hindus*.

3. Law treatises on the *Manu-niti*—books of eighteen authors enumerated, some of them of great antiquity.

4. The eighteen *Puranas*—the names specified: distinguished into *Saiva*, and *Vaishnava*, kinds.
A concise indication of the general nature of their contents.

5. The eighteen *Upa-puranas*—the names of them are given. The general nature of the contents is specified.

6. The *Baratham*—the *Ramayanam*, and some other books; contents explained: the matter of some of them is censured, as tending to bewilder men's minds, and sink them into gross sensuality.

Notice of some books connected with the life of *Crishna*, the adventures of *Nala*, and other books, of the kind of poetical, or extravagant, romance.

7. The *Nataga* works, or *Dramas*.

8. The *Jambu* class of books, or abstracts of ancient and extensive compositions; the said epitomes having been made by *Cali dasa*, and

other poets or learned men; and being adapted to aid as a guide to an outline acquaintance with the originals.

9. The *Bana* class of books.

These are explained to be erotic treatises: teaching the art of fascinating the eye, according to the common fable of arrows.

10. *Upa-jnana*—books of adventures.

These describe the great sufferings of certain personages, and the happiness which followed. They refer to *Harischandra*; *Nala*; *Cusala*, son of *Rama*; and *Sita*, wife of *Rama*.

11. The *Nigandas*, seven are mentioned. They are of the dictionary kind; containing words with synonimes, or explanations.

12. The *Ramayanas*, or various Tamil versions of this poem—four are mentioned.

13. The *Barathams*, or versions of the *Mahabharata*, various other tales, fables, and the like kind of works.

14. Books peculiar to the *Vaishnava* system; a considerable list of these is given, thirty eight in number, several of them have the word *mystery*, added to the specific name. According to the explanation, they relate to the *spiritual* interpretation of the symbols employed by the sect, or to the *ésoteric* doctrines; and much of the contents appertain to a future state of being.

15. The *Vedanta-sastras.*

The *Purva-mimansa* of *Jaimini*—comments of *Battacharya*, *Vyasa*, *Sancaracharya*, and some others.

16. The *Jyotisha* system, or astrological works.

These blend, what we term, astronomy and astrology together: they are ascribed to eighteen *rishis*, whose names were probably attached to them by later writers. The amount of the whole is stated at four lacs of *slocas*, or four hundred thousand poetical stanzas, in the *Grant'ha*, or *Pracrit*, of the south.

17. Epitomes of the foregoing systems.

18. The *Cali-jnana* systems.

These relate chiefly to magic, with a few exceptions, such as the *Baratha sastra*, relating to dancing, and such as relate to ceremonies. Others profess to teach such arts as flying in the air, stupifying enemies, casting arrows, neutralizing the effects of fire, and a variety of similar matters: the total amounts to sixty-four kinds of such arts.

19. *St'hala Puranas* of the *Chola desam.*

Forty six of these are mentioned, relating to various places, within the twenty-four *Kadams* of the *Chola* country; of which the bounda-

ries are mentioned in the explanation: and which country is usually estimated at two hundred and forty square miles.

20. Names of fanes in the *Pandiya* country. Eighteen of these are mentioned; each of them having its local *puranam.*

21. Local *puranam* of the hill country; one only is specified.

22. Fanes in the *Chera* country.

Fourteen are mentioned, each having its local legend, of marvellous circumstances.

23. Fanes of the middle country.

Two are specified, with their *Puranas.*

24. Fanes of the *Tonda* country.

Conjeveram and other fanes, to the number of thirty-seven, are enumerated, with their *puranas.*

25. Local *Puranas* of the north country.

Ayodhya is the chief, and connected with it, eight others are enumerated.

26. Miscellaneous *Puranas.*

Eleven are mentioned; it being added that there are many more.

27. Miscellaneous Tamil books.

A very long list of these books is given, forming a useful index, in connexion with the brief explanation of each which is given. Of course the value of these works is not uniform. The particular section of dramas is here noticed, because the list contains several which are formed on events mentioned in the Christian Scriptures, and which are supposed to be the productions of Roman Catholics. The list of medical books is somewhat full. To the mention of *Saiva* works something expressive of condemnation is usually added.

28. Grammatical works.

Thirteen of these are mentioned of which in particular, the *Nannul, Tolcapiam,* and *Tonnùl,* are well known.

29. Another list of astrological works.

The former list was of *Grant'ha* books, this of works in Tamil.

Twenty-one are specified.

30. Miscellaneous arts, mechanics, building, &c.

Art of constructing forts, houses, fanes; of settling a village, navigation, and a variety of other similar things; enumerated as taught in thirty-six works, the names of which are given.

31. Local *puranas* of *Saiva* fanes.

Sixty-three of these are specified: they are to the north of the *Caveri.*

32. Fanes on the south bank of the *Caveri* river.

One hundred and twenty-seven are enumerated, each having its *St'hala puranam*; of which, in the brief explanation, some mention of the origin is given, but without specification as to each particular legend.

33. *St'hala puranams* of the *Pandiya* country; fourteen of these are mentioned.

34. Hill country. One *puranam.*

35. *Conga-nad,* local-legends. Seven are enumerated.

36. The fanes in the middle country.

Twenty-two, with each one its legend, are enumerated, the productions of *Appar, Suntarar,* and *Manicavásacar.*

37. The legends of fanes in the *Tonda* country; thirty-two are enumerated.

38. *Irza-nad* local legends.

By *Irza-nad* here seems to be meant Ceylon, as the *puranam* is said to describe the *Candi-desa,* surrounded by the sea.

39. Local legends of the north-country.

Five are mentioned—*Kailasa* being included.

40. Names of *St'hala-puranas* of the *Tuluva* country.

Gokernam is alone mentioned.

The total of *Saiva* fanes, and legends, is here stated to be two hundred and seventy-four.

41. The *Agama-sastras.*

The twenty-eight *Saiva ágamas*; the names are given; but though a general indication of the subjects is added, yet, for fuller information, a reference is made to *Brahmans* versed in those books.

42. Summary, or recapitulation.

The contents of this summary form a rather interesting synopsis of the various religious systems, and some of their peculiarities, within the extensive country usually denominated India.

43. Total of the books before mentioned.

A few further remarks, on the distinctive classification of the various books contained in the preceding enumeration.

Observation.—The foregoing is a sort of catalogue *raisonée,* although not in logical method. The preparation of it must have demanded considerable pains and care. I imagine that several persons must have been engaged in its arrangement. The language is neat and correct, wherever there is detail or explanation.

Altogether it seems to be a valuable document, for occasional reference. It was written on country paper, completely eaten through by *termites,* causing distinct perforations, so as to leave some words irrecoverable or doubtful. It has however been restored with sufficient, and satisfactory, accuracy. A full translation might be desirable; as being adapted to present the learned in Europe, or elsewhere, with a more complete view of the precise nature of native literature, in the Tamil country, than could elsewhere be obtained; and certainly such as no European could prepare.

MS. Book, No. 16.—Countermark (not legible).

Section 1. A *Malayalam* book containing an account of *Kerala desam,* translated into Tamil.

This book is the *Kerala Ulpatti* translated, as noted at the end of the document, from the Malayalam MS. of the late Mr. Ellis. On comparison with the copy of the original *Kerala Ulpatti,* in this collection, it was found that the translation was begun, not at the commencement, but farther on; the omitted portion being appended at the close. The translation also differs a little in a few places from the original, intimating some small differences in the two copies of the original. The book (No. 16) containing this translation being in a greatly injured state, arising, not as usual from insects, but from having seemingly been exposed to damage from sea-water, it claimed attention, if from this cause alone. In consequence the whole has been re-copied; and, at the same time, the proper order of the translation restored.

Section 2. A copy, from an original manuscript, in the possession of the lady of Cannanore, in the *Malayala* country.

It is (improperly) styled the *Kerala Ulpatti.*

Subsequent to a certain flood, and in the *Cali yuga* era 3491, the *Kerala raja* was crowned, at twenty-five years of age; and he ruled sixty-three years. A list of fifteen kings, and the period of each one's rule is given. A prophecy of an astrologer is then introduced, intimating that evil days to the *Kerala* country would come; foreigners would rule; the king would turn Mahomedan, and the country adopt

that religion. The birth of the child, through whom these changes were to happen, is then particularly adverted to; being the *Cheruman Perumal* who went to Mecca. He was 40 years old when he went away; and his instructions to be observed during his absence are stated. He died on the return; only his companion reached *Kerala;* who turned the family of *Cheruman Perumal* to the Mahomedan faith, and styled the son of late king Sultan Mahomed Ali. This was in "Hegira 64." A list of descendants follows with Mahomedan names, sixteen in number, and then two female rulers. Certain *Feringhis* (foreigners) came in the year 359 ("Hegira" supposed); and fought with the Mahomedans in the Maldive islands, turning some of the people to the foreign religion : in consequence of which, aid was sought by the Mahomedans, the leading men among whom came to Cannanore in a dhoney; and an agreement being ratified and recorded on copper plates, aid was sent: the foreigners were extirpated, and the power restored to the Mahomedans. They were subject to the Cannanore rulers; but one or two among the island chiefs assumed independence, leading to wars and interventions. This notice of the Maldives is introduced as belonging to the time of *Isar Bokhar*, in the year 455. The list of kings down to the second of the two female sovereigns was before given.

Remark.—This is the most plain matter of fact document regarding the Malayalam country, which I have as yet met with. The appended statement, concerning the Maldives, is exceedingly curious. It seems to me that the whole document, which is but brief, claims full translation, as offering matter proper to be compared with other documents, concerning Malayalam; whereby general results may be deduced.

B. MALAYALAM.

Book No. 3.—Countermark 896.

Section 1. Chronological notice of Malayalam, containing the dates of *Crishna*, of the *Pandavas*, and of *Cheruman Perumal.*

Crishna was incarnate, and flourished on earth for 107 years. He lived during 94 years of the close of the *Dwapara-yuga*, the remainder in the *Cali-yuga* ; and was contemporary with some other connected persons such as *Dherma-raja*, and *Arjuna;* about the same time was the era of the great war. Various dates are given connected with the close of the *Dwapara*, and beginning of the *Cali-yuga.* In the distress, which followed the great war, a *Brahman* came to *Crishna* and *Arjuna*, and complained of the loss of his nine children. *Crishna* was silent; but *Arjuna* on learning that the *Brahman's* wife was pregnant guaranteed the life of the child; even, if necessary, by himself entering the fire as a sacrifice to *Yama* to save the life of the child. *Crishna* rebuked *Arjuna* for so rash a promise, and took him to *Vaicont'ha*, where the nine children of the *Brahman* were found to be comfortably seated on the lap of *Lacshmi.* They were brought back to earth on a celestial car ; and the place where this descended, called *Tiruponutara* (near to Cochin) was afterwards set apart as a holy place, in the fifty-first day of the *Cali-yuga. Crishna* died in the eleventh year of the *Cali-yuga. Dherma-raja* died also in that year, with a difference between the two periods of only 25 days. In the year 148, *Padmanába-svami* was established. (This is the image worshipped in the capital of Travancore). Subsequently in the year 3444, *Cherumal Perumal* flourished at *Tiruvangiculam* (A. D. 342). He distributed the country under various chiefs, and gave the official emblems of office. He died in 3508 (A. D. 406). The arrival of a foreigner at *Collam* (Quilon) is noted in the 425th year of the *Collam-era* (A. D. 1249). *Tirumala-dever-svami*, was established at Cochin in C. E. 469. In C. E. 971 (A. D. 1795), the *Vetta-raja* was killed by foreigners, the *Landa-para* (apparently designating the English).

Remark.—This short paper seems to merit a full translation.

Section 2. Account of the modes of hunting in the Malayala country.

There are three modes, one that of *Arjuna*, one that of *Ayyapen*, one that of *Cáttala* (or foresters). The various descriptions of people requisite to hunting specified. Certain hunting phrases explained; and terms which, as signals, designate the nature of the animal to be pursued, and the number. Six other kinds of hunting are afterwards specified. *Mythology*, and a visit to heaven to fetch down four images thence, mingled with the other matter.

Remark.—To some this section would be curious, and interesting: it is however of no further use than to aid in describing manners and customs.

Section 3. Account of agriculture in *Kérala-desam.*

Invocations to *Rama*, and *Ganésa*. The people of the land addressing *Parasu Rama*, stated, that though the land was fertile, yet that they knew not how to cultivate it. He in consequence is represented as giving them instructions how to proceed. The first part relates to preparation of the ground, care of oxen, and qualifications of the cultivator, who must not eat flesh, nor use intoxicating liquors, nor allow himself indulgence in sleep, with various other details. The second part is put into the mouth of a *rishi* as deputed by *Parasu Rama*. It relates to choice of seed, and propitious time for sowing in well ploughed ground, by oxen well fed, near to places where there are many inhabitants, and where water can be obtained, as without water the best labours will be fruitless. Other connected details.

The third part relates to manure by decayed skins, ashes, dung, and the like. The rainy season, when water descends in torrents from the mountains, to be attended to, and the streams collected into reservoirs. The planting and cultivation of rice. The planting of cocoanut-trees, areca-palms, pepper vines, and other trees, as productive of great advantages. These and similar matters are given in detail.

The fourth part refers to the following topics. Times of beginning agricultural labours, on reference to astrological configurations. Time of harvest. Rules as to the choice of horses, bullocks and other cattle, in the purchasing of them; and modes of managing, or taking care of them, so as to become most useful for agricultural purposes.

The four parts are in poetical language. They form a kind of brief Georgics; not well capable of being abstracted. This paper on agriculture in full, might be interesting to the curious; and would be requisite in any general description of the *Malayala*-country.

Section. 4. Regulations (or laws of the *Kerala-desa*).

Discrimination between the person of integrity, and one devoid of truth. Qualifications for good government, and for exercising the offices of a statesman. The duty of a king to protect the four classes of the people—*Brahmans*, kingly race, merchants, cultivators.

Local customs, and subdivisions of people. One who abuses a *Brahman* is to have his tongue cut out. The distance to be observed by a *Sudra* in approaching higher classes; different classes of *Sudras* having different measures of distance assigned to them. Rules of debtors, loans, and interest—modes of recovery in case of dishonesty. Recommendation not to go to law, but to refer the case to Brahmans, or other special arbitrators. Laws of marriage. A *Brahman* may marry four wives, and of each of the inferior classes in order, without crime. Law of bonds for debt, which hold good for only twelve years; and after that period must be renewed in order to be valid. Laws for regulating the forming of lands, and settling disputes which may arise thereupon; which subject closes the document.

Remark.—This paper seems to be of some importance towards any just explanation of the great peculiarities that obtain in the *Malayala*-country.

Section 5. Original account of *Kerala-desa.*

This is the *Kerala Ulpatti* in the *Malayala* language; before abstracted, see first report; Art. C. and Restored MSS. Vol. 1, C.

Section 6. Biographical notice of *Sancaracharya.*

This notice is written in the *Malayala* character, and in the Sanscrit language.

It contains an account of the birth, education and subsequent proceedings of *Sancaracharya*, the great disputant, the opponent of *Ramanuja* and founder of the *Adwita Brahmans;* whose leading tenet is

that the deity, and the human soul are not two things, but one and the same. This account is written in a series of Sanscrit *slocas*, or stanzas. There are other documents in this collection, concerning this polemical champion, better fitted for abstracting than inflated poetry. This paper has received attention in a few places, where the great paleness of the writing indicated the need of restoration. All the remainder is in a very good state of preservation.

Section 7. Memorandum of Malayalam books.

This is a brief list of books, illustrating the history or manners of the Malayalam country, with an indication as to the persons in whose hands they may be found. One of the works, referred to, is contained in this collection, in a Tamil translation, being the document from Cannanore, noted at the close of the foregoing Tamil manuscripts. There is also mention of the various rajas, or chiefs in Malayalam, at the time when the document was written.

Section 8. Regulations of the *Malayala*-country, relating to laws and manners.

This section is headed *Vivahara Samudra*, and is a Sanscrit version in Malayala characters of the same general subjects as those treated of in Section 4. That section is in plain and ordinary language; but this is in verse, and differs a little from the other; but, in so far as rules or laws are concerned, not to any material degree. Each *sloca* has an interlined Tamil translation; apparently made with a view of aiding the late Mr. Ellis in his inquiries, since the document bears a note that a copy of it was transmitted to him. The document has been restored, and may form a useful record for the sake of reference.

Section 9. Account of the tribe of *Mapalamar* at *Pannyur* village in *Malayalam.*

Answer to an enquiry by the Collector in 1812, concerning the origin of the Mahomedans in Malayalam.

The writer *Jain-ud-din-Mahud*, in reply, states that in the time of *Cheruman Perumal*, a ship came from another country in which were Jews, and Nazarenes, (Christians), together with their families, who

were permitted to settle; that a second ship came from Arabia, bringing Mahomedans, among whom was a Sheikh; and that *Cheruman Perumal* enquired from him much concerning the religion and customs of the Mahomedans; that *Cheruman Perumal* became a Mussulman, and after making over his dominions to his relatives and others, left the country; that, a ship being provided, he went with the Sheikh by sea, the ship touching at various places, and at length at Mecca. It is added that the king residing there some time studied various books, and then came back, bringing with him several teachers. His health was not good; and he in consequence charged those to whom he had delivered over his power to receive and propagate the Mahomedan religion. After his death the Mahomedan system was disseminated in some places, and mosques were built.

Answer to the question, what are the peculiar manners and customs of the same people as now neutralized in the country.

The reply adverts to the cultivation of pepper, and trade in that article, originally carried on by this people. Three *Feringhi* ships came to Calicut for the purpose of trading. The *Feringhis* began to form plantations, and to monopolize the pepper trade, demanding a recognition of the supremacy of their flag, and allowing no vessels to trade, except such as carried a license from themselves. Under these circumstances, application was made to the Sultan of Roum (Constantinople ?); in consequence of which three Arab-vessels armed, were despatched. Disputes and fighting with the *Feringhi* people followed; the result of which was that the *Mapalas* had greater facilities for commerce than for a time had been allowed them.

In Hegira 904 (A. D. 1489-10) a great man of their tribe came from Arabia, and being on good terms with the Calicut-*raja,* he requested and obtained leave to build additional mosques in the country. These buildings were erected and the people together with their religion flourished.

At a later period the Padshah took the country, and distinguished these people, as being Mahomedan, with favours and privileges. But from the time when the English acquired power in the country their privileges had not continued, and they were consequently aggrieved.

Connected with *Ponani-nagara,* there are sixteen mosques; for the maintenance of lights and other matters in which, the Sircar allows nothing.

The writer closes with some brief mention of his ancestors and himself: from which it appears that they, and he, had been hereditary chiefs of the *Mapalas.*

Section 10. Account from *Yogiyar* (or religious ascetics) at the village of *Alipudumbu* in Malayalam.

The ascetics of the said village address Mr. Baber, who had directed certain queries to them ; and, after briefly adverting to the formation of the country, the location of *Brahmans* in sixty-four villages, the choice of a king, and privileges of the *Namburi Brahmans,* they proceed to state, in answer to an enquiry, as to ancient books that the *Kerala Ulpatti* exists in the common language, and that a copy of the work in Sanscrit, may be found at *Codangnur* (Cranganore ?). In reply to another inquiry they state, that there are no inscriptions on stone remaining ; to another reply, as to events subsequent to *Parasu Rama,* they state that *Parasu Rama* formed the country, and located therein, the *Brahmans,* in sixty-four villages, charging them with certain duties and ceremonies ; that these *Brahmans* introduced *Cheruman Perumal* as king ; that *Cheruman Perumal* appointed other chiefs, and subordinate divisions of government. They further state that the Malayalam country properly extends from *Gokernam* in the north, to *Canya Cumari* (or Cape Comorin) in the south ; and they advert to the religious foundations, and different images worshipped within the boundaries of the country. (The whole of the reply is very concise).

There follow a few Sanscrit *slocas* (stanzas), in the *Malayala* character, supplied by the chief of the before mentioned ascetics ; and simply confirmatory of the brief account given : it is not stated from what book, or record, the stanzas were obtained.

Section 11. Account of the *Cottaiyatta* chief of the *Mapala* caste in Malayalam.

(This title in the index of the original does not well agree with the contents).

Certain persons, whose names are given, in reply to certain queries from the Cutcherry made in July 1806, wrote to this effect.

There are no stone or copper inscriptions in the country—concerning ancient kings they had learnt from their forefathers, that in the district of *Paracumitil* (the Wynaad country) to which their answer refers, of old there were no other inhabitants than *Vedars* (wild hunters) under rulers termed *Veda rajas.* In those days a *Cumbala raja* proceeding from the north, on a pilgrimage to a shrine named *Tirunelli,* had to pass through the Wynaad country, and was taken by the people. Being carried before the *Vedar raja,* he stated his rank and object. The

Vedar raja told the foreigner that he must marry one of the daughters of the kingly tribe here, or else he would not be suffered to depart. The stranger objected that he himself was of the *Cshetriya* caste, and could not marry into the *Vedar* tribe ; but notwithstanding if the latter *raja* would consent to the entire ceremonial being performed according to the *Cshetriya* rites, that then he would agree to the marriage. The *Vedar raja* consented, and the other then directed that himself and intended bride should be kept in separate rooms, up to a certain propitious day specified ; that meantime a large *pandal* (or booth) must be erected and lined entirely with silks and other costly materials, and the whole place must be filled with the fruits of the *Nelli* (emblic myrobolan) and *Tani.*

The *Vedar raja,* was also to cause all the people bearing arms in his country to assemble by that time in a certain fort. To these instructions the *Vedar-raja* consented. The *Cumbala-raja* had two companions, one a *Jada-dhari* (or ascetic with matted hair) the other a *Sudra Vellazhan* : by the instrumentality of these persons he wrote to the king of the *Curumba* country, and to the *Cotta-raja* mentioning the precise time fixed, and bidding them come just then with all the forces they could command, and to enter the fort at the giving of a certain signal by sound of trumpet. At the time of the marriage ceremonies, musicians were appointed, the *Jada-dhari,* being their leader ; who gave the projected signal ; when the *Curumba* and *Cotta* chiefs entered the fort with their troops, by whom the *Vedar-raja* and the greater portion of his people were slain : a few escaped. On coming to the place where the *Cumbala-raja,* was confined, he told them who he was, and came out to them. The other chiefs then asked him as to the future government of the country thus acquired. He replied that his own country was too distant to admit of his having any thing to do with this country, and that it was sufficient to be saved from the disgraceful marriage that had been intended. The other two chiefs then gave him presents and complimentary honours ; and, seeing him well attended, sent him away to his own country. The *Jada-dhari* received a district of land to rule over. The before intended bride was given in marriage to one of the *Nambiya* caste, who was entrusted with the government under the *Curumba* and *Cotta* chiefs. These next consulted how they should divide the country so as to avoid disputes. They agreed to set out in different directions ; and to make the spot where they should meet the boundary. This plan does not seem to have answered ; and the *Cotta raja* desired the *Curumba* chief to take the whole country, and should his posterity fail then it should come to the

Cotta chief, or to his posterity, and so on alternately. The *Curumba* chief obtained the power. The aforesaid *Jada-dhari* had a daughter who married the *Cotta* chief or his descendant and transferred her hereditary possession with herself. Subsequently the *Cotta* and *Curumba* chiefs were at war with each other; a state of things which was put an end to by the country coming under the rule of the East India Company.

The foregoing account is attested by the signature of fourteen individuals, as being that which they had received from their forefathers by tradition.

Remark.—This document to say the least is curious. The *Vedar* chief, the *Hindu raja*, and the *Curumba* chief, seem to have been of distinct races of people. The *Cotta* chief is understood to have been a *Hindu.* The abstract above given is rather full; but the original document being copied and embodied in the 2d Vol. of Restored Manuscripts, can at any time be consulted for the purpose of full translation if considered to be desirable.

Section 12. Account of the tribe of *Tiyare-jati*, in the Malayala country.

A legendary account of the origin of the tribe from seven females, descended from the world of the gods; by whom *Siva*, assuming the form of *Agnesvara*, had seven sons. These seven sons were fixed, by *Parasu Rama*, in the land as heads of tribes. The names of the tribes are given. Their occupation is to procure the sap of the palm-tree, and deal in the fermented or distilled liquor. One of the tribes descended from one of the seven named *Camalan*, having received an insult from a *Sudra* man, emigrated with his clan to the *Irza* country; whence *Cheruman Perumal* sent to recal them, and allowed them to revenge the insult by retaliation. They subsequently resided in the country. They know of no stone, or copper-plate, inscription among them; but such exist at Travancore.

Section 13. Account of *Parakun Mitil.*

Brief notice of the arrival and settlement of a tribe of Mahomedans in the neighbourhood of Calicut; their wars with some neighbouring chiefs; and the privileges and immunities which were granted to them.

Section 14. Account of *Manikya-chendu*, a trader, a *Jaina* inhabitant of Calicut.

The statement is written by *Manikya*, who derives his ancestry from Gujerat; where his forefathers were traders, and of the *Jaina* religion. The account is very brief.

Section 15. Account of *Musata*, chief inhabitant of *Mangatambalam* a village in the *Malayala*-country.

A reply to questions, the same as proposed to other classes of people. They have no inscriptions—*Parasu Rama* formed the country into sixty-four districts; but did not establish any images or fanes. These were afterwards formed by *Cheruman Perumal*, and the *Brahmans*. In *Tuluva* there were thirty-two village-districts, and thirty-two in Malayalam-proper. The people of this village came originally from *Rama-natha Karai*. *Parasu Rama*, when he brought them hither, promised to them protection whenever they should think of him, and then went away. They wished to try his veracity, and called him without necessity, on which he testified great anger; and, saying he would not on any account come among them again, disappeared. Legend of the origin of a fane at *Muriyur*, founded on the circumstance of a stone giving out blood, when used as a whet stone. Some particulars are given of the extent, and proceeds, of the land possessed by the writer named *Musata*, a chief man, and belonging to one of the six subdivisions of the *Namburi-Brahmans*.

Section 16. Account of *Pannayur* village in the *Cuta-nad* district.

No inscriptions; a reference to the location of *Brahmans* by *Parasu Rama* at *Rama-nad* (said to be near Calicut, or distant from it about eight miles) and to local arrangements made. In reference to an enquiry as to some disabilities to which the *Brahmans* of this village are liable, the reply traces up the occasion to an *Agnihotra*, or kind of sacrifice, at which a king of Calicut named *Samanda*, refused to allow these *Brahmans* to assist; and he died without offspring, in consequence of the anger of *Brahmans* which he thereby incurred. There are some few other connected details. The dates of a particular sacrifice; of the establishment of an idol named *Varaha-svami*; and of the ascendancy of the Mahomedans are given, but with some added

expression of uncertainty. In reply to another enquiry as to the cause of the aforesaid king's rejection of the *Brahmans*, an answer is given, deducing it from their unwillingness to give up ancient rights, by concessions to the *raja* of Calicut. The ascendancy of the *Bauddhas* is noted; concerning whom a council of *Brahmans* was held, and a *Jangama-rishi's* advice was followed. By doing homage to *Varaha-svami* according to the *Jangama* rites, they succeeded in getting rid of their rivals and adversaries. *Chola-perumal*, is mentioned as participating in the affair; and he was killed in consequence by a *Brahman*, named *Kokatta Karanava-pada*, who for some short time afterwards took on him the management of the government; possessing an ascendancy over all other rulers of *Malayalam*. An enquiry as to the kings appointed by *Cheruman Perumal* is not clearly answered; the writer not professing to have an accurate knowledge of the subject. Some account is given in answer to a question, as to a village feud, between the people of *Punniyur* and *Chovur*. An enquiry as to the time of arrival of a *Namburi Brahman*, referred to in the account of that feud, and as to the time of the Ganga coming to Malayalam, is not answered with certainty; but it appears, that, when the sacred water came, a dispute arose between the Calicut *raja*, and the *Vettátta-raja* as to which should first bathe in it; and this dispute led to fighting, in which several of their people on both sides fell. Enquiry as to the legend of the fane at *Punniyur*. The answer refers to *Parasu Rama*, and his calling the *Brahmans* from *Hai-cshetriyam*, to come to Mälayalam, which they refused to do, unless in that country as well as in the one where they resided, there should be a *varaha-svámi*, and a sacred Ganga. In consequence *Parasu Rama* performed penance, and effected substitutes for both things desired; whereupon the *Brahmans* came, settling at *Chóvur* and *Punniyur*, between whom afterwards disputes, and fighting, arose. In later days the *Vaishnava Brahmans* resided at *Punniyur*, and the *Saiva Brahmans* at *Chovur*; being at enmity with each other. An enquiry as to the origin of the celebration of the coming of the Ganges, once in twelve years, into the tank at *Punniyur*, is not met by a direct answer, but reference is made to the rejection of an outcast man, who had presumed to approach at the time of the Ganges water coming to the fane. In reply to another question some discrimination is made between two subdivisions, or classes, of *Brahmans* at *Punniyur*. They do not know the cause why a particular *Tambiran*, or ascetic, acquired celebrity.

The signatures of six *Namburi Brahmans* are affixed to the document, in attestation of its veracity.

Section 17. Account of *Savaccudu-ayiruad* in the district of *Hób-halli.*

No inscriptions. Replies to enquiries (possessing a close similarity to the queries transmitted by Mr. Baber to other places) do not appear to offer any thing specially interesting. The account sent in is attested by the signature of three persons of the *Sudra* class.

Section 18. Account of ancient matters relative to the *Curumba-nàd.*

Reference to the formation of the country by *Parasu Rama,* and the introduction of the *Brahmans.* These afterwards invited a king from the *Pandiya* race, who was crowned on the summit of the highest mountain in the country. Subsequent to the rule of seventeen kings, each ruling twelve years, *Cheruman Perumal* ruled as the eighteenth, and did so for thirty-six years. He divided the country among several persons, one of whom was the *Curumba-rája* who governed thirty-six *kadams* (or *yojanas*). The race failed, and an adopted son was made chief. Bounds of the district stated. At a later period, being troubled by the Mahomedans, the people emigrated from the district. The English rule was greatly welcomed.

Section 19. Account of the tribe of *Caniyara Pannikar.*

In reply to an enquiry concerning their tribe they state that their ancestor was a *Brahman,* and give a legend of mythological kind, to account for the degradation of his posterity: astrological matters are mixed up with the legend.

General Remark.—The contents of this book, of so very varied value, have had a note in passing. From the seventh section to the end, the documents are loose papers tacked into the book, and written for the greater part on so fragile a material as China paper. It was therefore judged suitable to re-copy them in a more permanent manner. Some of the documents are not without value. They are the results of queries circulated by Mr. Baber, at the suggestion probably of Col. Mackenzie; as is rendered very probable among other reasons, by the first enquiry always being respecting inscriptions; and it would appear that in Malayalam there must be a greater paucity of inscriptions, than in other parts of India.

Professor Wilson has entered this book, Des. Catal. vol. ii, Page xcvi., art. 3, giving only a transcript of the English headings of sections prefixed to the book. In section 6 the word "originally" is not in the said headings, and its insertion in the Catalogue conveys an error. The entry is "History of *Sancaracharya* composed originally in the Sanscrit language." The document is still in the Sanscrit language ; though written in the Malayalam character.

C :—TELUGU.

Palm-leaf Manuscripts.

I. *Caliyuga-raja-charitra,* or account of kings of the *Cali-yuga,* No. 131, Countermark 330.

This manuscript reckons, at the commencement, by the era of *Yudisht'hira,* the whole of which era is stated to include three thousand and forty-four (3044) years. In this period the following kings reigned :—

	Years		Era of *Yudisht'hira.*
Paricshit	60	......	
Janamejaya	30	......	90
Suba Satanica	10	......	100
Ballana raja	204	......	304
Sudra maha raja	182	......	486
Sukethan	142	......	628
Vishnu Verddhana	286	......	834
Chandra gupta	210	......	1044
Vicramaditya (son of Chandra gupta)	2000	......	3044

The era of Vicramaditya beginning with him continued 135 years.

	Years		Vic. Era.
Bhoja raja	114	......	—
His son (name illegible)	21	......	135

To the south of the *Narmathi* (Nerbudda) river the reckoning by the era of Vicramaditya ceased; but continued to the north of that river. The era of Salivahana followed, containing eighteen hundred years. In this period the following kings reigned :—

	Years		Sal. Sac.
Salivahana	21	......	—
Madhava Verma	30	......	51
Kotta kevana	70	......	121
Nila Canda	33	......	154
Mukanthi	66	......	200
Choda maha raja, and his race	217	......	437
Yavana Bhoja	41	......	478
His race during eight generations	417	......	895

Subsequently came *Rama deva rayalu* and others. There were from Sal. Sac. 895, three thrones; that is, the *Narapati*, the *Gajapati*, and *Aswapati*, the whole of whom ruled during a period of five hundred and ninety-one (591) years. The *Narapati* and the *Rayer* dynasty (of *Vijayanagara*) : the family names of the two dynasties being *Champita* and *Salagola*. The *Gajapati* are the *Vaddi* kings (of *Orissa*) the family name of the dynasty being *Miryala*. The *Aswapati*, are Mahomedans. The *Ganapati* ruler (of *Warankal*) named *Rudra*, yielded them no obedience; and, inclusive of *Pratapa Rudra* and his race, a period of 160 years is reckoned down to Sal. Sac. 1505. This race is stated to have governed fourteen principalities. The *Gajapati* race is said to have ruled for 155 years; during which they built many *agraharas* (or alms houses) for *Brahmans*. The accountants employed by them were of the Tamil country; and the head inspectors were *Cauras* (a class of Telugu) people. Both were afterwards removed to make way for the *Niyogi Brahmans*. This was in Sal. Sac. 1210. Subsequently six generations of the *Reddivaru* ruled, during one hundred years; down to Sal. Sac. 1310. There follow some details, in which the concerns of the *Rayer* dynasty, and affairs of the *Gajapati*, *Mukanthi*, and Mahomedan rulers, are much interwoven. The account comes down to the grandson of Alum Shah, named Ahmed Shah, Sal. Sac. 1672 (A. D. 1750) : after which period and down to Sal. Sac. 1720 (A. D. 1798) it professes ignorance.

Remark.—This MS. of nine large sized palm-leaves, fully written, is for its size respectable. There seem to be some anachronisms, and an occasional inversion of the order in which the rulers mentioned

governed; and it is quite evident that too long periods are given to individuals, especially at the commencement; but these periods are not always to be understood as wholly occupied by the individual mentioned. He may be the head of a race, or the only person of any note during that period; and sometimes such authors as the present one must be understood as doing the best they can. Upon the whole this manuscript might deserve full translation; the requisite checks and comparisons to be supplied by annotation. The book is complete, and in tolerably good preservation; insects have begun to attack it; but as it will require to come under notice again, its restoration has been for the present postponed.

2. *Parasa Rama Vijaya*, or the triumph of *Parasu Rama*—No. 84, Countermark 388.

Vyasa and *Valmica*, being in the celestial world (or *Sverga loca*) narrate to *Indra*, the events which occurred in the *Treta yuga* or second age of the world, to the following purport. The *chacra*, or missile weapon of *Vishnu* disputed with its holder telling him that by means of itself (the *chacra*) *Vishnu* had gained his victories over the *asuras* and others. In consequence of this presumption *Vishnu* condemned the *chacra* to be born on earth. Accordingly the *chacra* came into the world as the child of *Krita Viriya*, but without either legs or arms. The astrologers being consulted, recommended the monster's being abandoned and exposed in the woods, or waste places. Being so exposed, *Athiseshan* fed it with poison, considering the case to be desperate; as if not nourished it must die, and the case could be no worse if poison failed of yielding nourishment. The child survived, and the serpent carried it to a fane of *Siva*, and left it there after committing it to the protection of *Siva*. By command of the god, the *Brahmans* belonging to the fane reared up the child. Subsequently *Siva* asked the lame and helpless monster what gift it wanted. It requested five hundred hands, and a thousand legs. The petition was granted, and the name of *Kartaviriya Arjuna* being bestowed, this now powerful being was appointed a *Chacraverti* or emperor. He ruled in *Jambuna-puri* a town built for him by *Visvacarma* (the artificer of the gods) who was specially summoned for the purpose. While he was thus ruling, on the banks of the *Narmathi* (Nerbudda) indulging in the usual kingly recreations, *Ravana* came thither, and by his orders was imprisoned. In consequence of this imprisonment a war arose, as the younger brothers

and other relatives of *Ravana* did their best to effect his release; but their efforts were too feeble, and *Karta viriya* merely sent his son against them, by whom they were conquered. *Vibushana*, younger brother of *Ravana*, thereupon went to *Pulast'hya* (the great *rishi*) from whom their family was descended, and besought his interference. *Pulast'hya* in consequence interceded with *Karta viriya* representing that *Rama Chandra* was appointed to come and kill the said *Ravana*, on which representation *Ravana* was released. Subsequently *Karta viriya* contemplating the extent of his power, his numerous family clients, and dependents became elated and greatly vexed the *Brahmans*.

(In this place there occurs a chasm in the manuscript).

Parasu Rama being greatly incensed comforted his mother with the assurance that he would go and kill this *Karta viriya* who had so slain his father (i. e. *Jamadagni*). Taking with him the bow which he had received from his preceptor *Subrahmanya* (which the latter had derived from *Indra*) he proceeded to *Jambuna-puri*, and sent a challenge before him, by a messenger, announcing to the tyrant *Karta viriya* that he was coming to do deadly battle. The monarch incensed prepared to go out to war, by collecting troops and munitions; but his younger brother *Sittira viriya*, represented that the occasion did not call for so much, and that, if permitted he would proceed to meet this enraged *Brahman*. *Sittira viriya* was accordingly sent; but his troops were destroyed, and himself slain. The king hearing of this disaster, was again about to proceed when another younger brother named *Sasi mucha* made a representation as the other brother had done, and was, in like manner, sent forth with troops: in fighting with *Parasu Rama* he also fell. The son of the monarch named *Haya haya* now came forward; and, after considerable fighting with *Parasu Rama*, he could not conquer, but himself was killed. The monarch was distressed, and wondered that a *Brahman* could possess so much prowess. His wife's brother named *Cama-crotha* offered his services, and was sent forth at the head of troops. He went to the contest, and after sacrificing his troops, also perished in the combat. *Karta-viriya* now took counsel with his ministers, who represented to him that this *Brahman* was certainly an incarnation of the divinity, so that it must be useless to attempt resistance; that consequently the proper course would be to effect a treaty of peace, when the adversary would become a protector. His queen named *Caruniya-devi* made similar representations, which were disregarded; as were also the cautions of his other advisers. Having already lost his nearest relatives he disdained to crouch, merely for his own life, to a *Brahman*: sending out missives to

all his warriors, he assembled them, and putting himself at their head he entered his war chariot, and went forth to battle. The contest lasted for twenty-one days; when *Karta-viriya's* people were all slain. *Parasu Rama* now took counsel with *Nareda,* as to the expediency of fighting with *Karta-viriya,* when *Nareda* observed that the adversary was the *Chacra,* and that specially for the purpose of killing the incarnation of that weapon he (*Parasu Rama*) had been born. Encouraged by this information *Parasu Rama* came to the personal contest. It continued for seven days; and, at the close, when *Karta viriya* was injured and disabled by the arrows which had been poured in upon him, *Parasu Rama* came to close quarters, and with his axe chopped off his five-hundred arms. *Karta-viriya* now made the last desperate attempt to fall upon, and thereby crush, his assailant; but in the attempt *Parasu Rama* forcibly struck the monarch's head with his hand, and deprived him of life. The whole of the celestials witnessing this result, greatly lauded *Parasu Rama.* The queen and the other families of the palace, who had lost their husbands in the battle, were desolated with grief; but *Parasu Rama* dispatched *Nareda* to them, with the consoling assurance that all things had happened by superior causation (or by destiny). The whole of the said females burned themselves on the funeral pile, with the bodies of their slain husbands, and thereby obtained beatification.

Parasu Rama returned to his mother, and announced, that the pre-existing cause of enmity, had been to the fullest degree avenged; and upon receiving her commands, he, in obedience thereto, returned and assumed the government of *Jambunapuri*; releasing from prison all the persons whom the late king had confined therein. While he was prosperously ruling there, the whole of the Brahmans assembled, and represented to him, that on account of the fault which had a reference to his mother, he had previously, in promise, made over the whole of the land in free gift to them (the *Brahmans*), and could not equitably assume the reins of government himself. Not to forfeit his veracity, he determined to act up to his promise; and, relinquishing the whole land to them, retired, and built himself a hermitage of branches and reeds. The *Brahmans* however still pestered him; asking him if it was right to sell jewels, and other valuables, when he had already made over every thing to them. Incensed beyond endurance he went away, and besought a territory from the sea; which he received, in accordance with his request, and there he resided. While living there, *Rama Chandra* together with *Sita* his consort, came that way. *Parasu Rama* scolded him for taking the same name, saying "I am

Rama, but if you indeed are *Rama,* then bend this bow." The other *Rama* did so, but (according to this authority, differing from the *Ramayana*) it broke. *Parasu Rama,* perceiving the stranger's strength, paid him great compliments ; and then, dismissing him, sent him away to *Ayodhya. Parasu Rama* himself continued to reside on the territory which he had acquired.

Observation.—The chasm in this manuscript (extending it appears to 41 palm-leaves) would in a literary point of view be serious ; especially as the book is a copy of a poem become as I understand, very scarce, and not to be met with elsewhere at Madras.

In the bearing of the half legendary, half historical, subject on the leading object of the present researches, the deficiency can be briefly supplied from other sources, to the following effect.

The *rishi* named *Jamadagni* father of *Parasu Rama,* possessed the cow of plenty, *Camadhenu* or *Surabhi*; and by means of this cow, on the occasion of a certain hunting party all the suite of *Karta viriya* were satisfied. The monarch in consequence considered the possession of this cow to be an object to him, and asked it of *Jamadagni,* who refused it, as a matter of course, it being the cow of the gods. No solicitations, or molestations, being sufficient to obtain the cow as a gift, *Karta viriya* killed *Jamadagni* to get at the desired treasure by force. Hence the resentment and vengeance of *Parasu Rama.* It is probable that the missing leaves would contain an account of the birth of *Parasu Rama* Towards the close of the poem the *Brahmans* remind *Parasu Rama* of the fault concerning his mother, which is rather equivocally expressed, but most probably alludes to the following circumstance.

Jamadagni's wife, the mother of *Parasu Rama,* was named *Renuca* ; and one day, for a mental transgression of strict conjugal fidelity, the father in anger told *Parasu Rama* to take his axe and cut off her head. He obeyed, and cut off the head of his mother, near a *Parcheri,* or hamlet of out-cast people, as well as the heads of some of those persons, on their opposing his design. The father, approving his proceeding, asked what reward he required, when he requested that his mother's body might be re-animated. The father consented to his request, having at the same time power to fulfil it; and gave directions to his son as to the mode in which the head and body should be joined together, promising to re-unite, and re-animate them. In the hurry of the moment instead of his mother's head *Parasu Rama* applied the head of an out-cast woman to his mother's life-less trunk : when the whole became re-animated. It is stated that on this legend the Pariars (or

out-casts) found their worship of various local *numina* being none other than ideal forms of the wife of *Jamadagni*, considered to be divine as having given birth to an alleged incarnation of the divinity.

I have no doubt that all the alleged *avataras* of *Vishnu* shadow forth, each one, some great historical event, not always possible to be rescued from the obscurity of fable. The preceding ones seem to have had their site out of India ; but from *Parasu Rama* downwards, all clearly appear to have occurred within the boundaries of this country. Hence I think the incarnation of *Parasu Rama* points to the first acquisition of power by the *Brahmans*, after their coming to India, from the northward of *Himalaya*. There is however much more connected with the distruction of the *Cshetriyas*, or aboriginal rulers of the land, than can with propriety, be founded on so comparatively slight an authority as this poem. The whole however will probably come under view; and it may be safer to advance step by step, than to hazard conclusions, without carrying full conviction to the mind of the reader.

It is superfluous for me to notice the oversight in this poem, by its author, as to dignity and consistency of subject. A weapon reproaches its wielder—is sent down to the earth for penance, and followed by the offended deity to overcome it there; and the deity, without foreknowledge, is in some doubt as to the prudence of attacking its own instrument, under so formidable an appearance, until set right by that very questionable character, and meddler in all mischief, termed *Nareda* : to which may be added the existence of a duplicate *avatara*, and the elder portion not recognizing the younger one. These noddings of intellect are however so common in Hindu mythology, that they must not be thought strange. It is the inseparable concomitant of falsehood that it carries, within itself, the evidence of its own character.

In the minor matter, which regards the condition of this manuscript, it is sufficient to observe that it is old, and worn away at the edges. If complete it might be restored ; but, until it can be completed from some other copy, it may lie over for the present. The abstract given will suffice for every valuable object of these investigations. It is briefly mentioned in Des. Catalogue, Vol. 1, p. 333, and therein termed " a prose narrative."

3. *Tanjavur Charitra*, or account of Tanjore.—No. 122. Countermark 325.

The book commences with the mention of the appeal of *Chandra*

Sec'hara Pandiyan to *Vijayagara*, and the sending of *Nagama Nayaker* to repel the invader of the *Pandiya* kingdom, that is *Vira-sec'hara Chola*; whose invasion was thereby nullified, and his own dominions, the ancient *Chola* kingdom, conquered. Over this kingdom *Chevapa Nayaker* was appointed viceroy, in consequence of his having married *Murti-ammal* the younger sister of *Tirumalamma*, the wife of *Achyuta-deva rayer*; this viceroyship being the dower. He built and improved various fanes. His son was *Achyutapa-nayadu.* His son was *Raghunatha-nayadu.* His son was *Vijaya Raghava nayadu,* who built a new fort at Tanjore, and made many other improvements. He built a *Mantapa* at *Mayuram* (perhaps *Mayaviram*). He daily fed 12,000 *Brahmans,* and eat himself afterwards. In a rainy time he was advised to cease doing so, but he maintained that his own household could not be allowed to eat till the *Brahmans* were fed; and when an entire want of fuel was stated to exist, he ordered every wooden material about his house to be taken down or pulled to pieces, in order to supply fuel. In three days this supply was exhausted; he then directed all the vestments in the palace to be dipped in oil, and made use of for fuel. At this time a most valuable jewel became missing from the nose of the female-idol in the *Sri-rangham* fane, and the head *Brahman* was greatly molested, as being suspected of the theft. A *Brahman* woman became possessed; and, speaking in the name of the said goddess, said that the jewel would be found in one of the pots used by *Vijaya Raghava* for boiling rice; where accordingly it was found, to the no small joy of the said ruler. In consequence he gave twenty-four thousand pagodas to the fane; and having another image made, the precious jewel was put in its nose, and sent in state to the shrine. He daily went to that fane before breakfast, keeping fifty bearers as station runners to carry him. *Choka natha* of Madura sent an embassy to demand a wife of the family of *Vijaya Raghava,* which was refused in anger; and the reason stated to be, that a Tanjore princess married to *Tirumala Savuri,* from a simple preference given to her father's town, so hurt the pride of *Tirumala nayak* that he put her to death; and the Tanjore family then made a vow never in future to give a wife to the Madura rulers. The messengers were contemptuously treated. A war was the consequence. It interrupted *Vijaya Raghava's* visits to *Sri-rangham*; but he built a lofty hall in Tanjore; and there, with his face towards *Sri-rangham,* performed his daily ceremonies. The war proceeded to the disadvantage of *Vijaya Raghava,* because of certain incantations with pumpkins, performed by a *Brahman,* at the request of the Trichinopoly king. When the fort of

Tanjore was assaulted. *Vijaya Raghava* made preparations for the combustion of the females of his palace, lest they should fall into the possession of the adversary. That combustion took place; but not until the crowned queen had sent off a nurse with a young child four years of age. *Vijaya Raghava* became reconciled to his son *Manara*; and the latter fell in a personal contest, hand to hand, with the commander of *Choka natha's* troops. The ruler *Vijaya Raghava* personally engaged in the contest; and is stated to have requested that musketeers might not fire on him, as if he so died, he could not obtain beatitude. He was killed (as he preferred) by the sword. An apparition of himself fully attended, as usual, came to the gates of *Sri-rangham*, and demanded entrance, which was conceded, under an idea that he might have made peace with the ruler of Trichinopoly. After the usual ceremonies had taken place, nothing more was seen of him; and the circumstance being reported to *Choka Natha* the king, he observed that it was because of his being a very great devotee of the god. He gave prompt orders, by post, for the performance of all funeral ceremonies to the bodies of the deceased; and then assumed the whole of the country. He confided the charge of it to *Alagiri*, the child of the nurse by whom he himself had been reared, being his foster brother. Meantime the nurse, that had fled with the child of *Vijaya Raghava*, remained at Negapatam, the child passing as her own till it was twelve years of age; when *Vencana*, a *Niyogi Brahman*, a *Rayasam*, or secretary of *Raghava*, heard of the matter, and went thither to see the child. In the course of twelve months he assembled about a hundred dependents of the late *Vijaya Raghava*; and taking the nurse and child proceeded with these, and those dependants, to the *Visapur Padshah*, where they met with a favourable reception, and a promise of aid; being, however, kept in waiting, for a short time. In the interval *Alagiri*, to whom the fort of Tanjore had been confided, affected airs of independence, by writing on terms of equality to *Choka-natha*; and when reproved for doing so, he returned no answer. *Choka-natha* was deeply displeased; but restrained, for the time, any expression of anger, considering that *Alagiri* had strengthened himself, and could not be assaulted, without mature preparation. Under these circumstances the Mahratta chief approached. He was sent by the *Visapur Padshah*, with a small force to reduce *Alagiri*, which force he increased by auxiliaries, derived from his two brothers at Bangalore and Ginjee. *Alagiri* went out to meet the invaders, and a pitched battle was fought, with considerable numbers engaged, when 400 Mahrattas and 500 of

Alagiri's people fell: and *Alagiri* being quite unable to inspirit his people so as to maintain the engagement, these fled, without looking behind them, till they reached the fort of Tanjore. Thence *Alagiri* sent a supplicatory letter to *Choka-natha* of Trichinopoly; but the latter guided by pride and resentment (rather than by policy), refused to interfere, or send any aid. *Eckoji* now laid siege to Tanjore, and *Vencana,* the aforementioned *Niyogi Brahman* it seems was inside the fort, busied in promoting disaffection. The manuscript states that *Alagiri,* finding himself in danger of being arrested and imprisoned, in consequence of the machinations of the *Brahman,* fled with all his family and immediate dependents, by night, and took refuge in Mysore. In consequence, *Eckoji* had the son of *Vijaya Raghava* mounted on an elephant, and the said son named *Chenga-mala-dasu* made a public entry into Tanjore. *Eckoji* committed the ceremonials of his being crowned to the *Niyogi Brahman,* and retired to his troops without the walls. The ceremony of crowning took place. Subsequently the nurse pointed out the spot in the palace where the treasure, accumulated by the young man's ancestors, had been deposited; whence were taken twenty lacs of pagodas, and six lacs of pagodas in jewels. With this treasure, a portion being reserved for the newly installed king, munificent donations were made to *Eckoji* and others, who had been concerned in the restoration. To defray the expenses incurred by the troops, *Eckoji* received the districts of *Combaconum, Manarkoil,* and *Papavinasam,* the revenue arising from them to be so applied. It being customary for a king to have a *Dalavayi,* or prime minister, the general voice was in favour of an appointment of the *Niyogi Brahman* named *Vencana,* to that office; and arrangements to that end were being made; when the young man, consulting his nurse whom he regarded as his mother, she strongly urged the appointment of the *Chetti* (or merchant), who had protected them in their distress; and this advice prevailed. The *Niyogi Brahman,* bitterly disappointed, counselled *Eckoji* to assume the country, which he declined to do. At length however, by repeated solicitations, *Eckoji* explained to him that by such a proceeding he should incense the *Padshah,* and endanger the lives of his father and kindred. While engaged in conveying secret information of the state of things to his kindred, news came of the *Padshah's* death; and *Eckoji,* being exempt from fear from that quarter, next directed his precautions towards Trichinopoly, enquiring if he had to anticipate opposition thence. The *Brahman* told him not to fear, but simply to come with his troops, and he (the *Brahman*) by his management would insure him the fort, perhaps without firing a

shot. In the fort the *Brahman* busied himself with magnifying the anger of *Eckoji* concerning arrears unpaid; and, on the intelligence of *Eckoji's* troops being in motion, the panic was wrought up to such a pitch, that the young man fled,and thought himself happy in receiving, from the poligar-chief of *Ariyalur*, assurances of hospitality and protection. *Eckoji* entered the fort without opposition; and from that time downwards his descendants ruled. Their names are mentioned. The names of the children of *Chenga mala dasa*, and some of their marriage connections are added. They received fiefs first from *Choka nather*; and, at a later time, when Trichinopoly had been taken by the Mysoreans, these also extended protection to them. During the time of Tippu Sultan, the king of *Candi* sent for some of the existing dependents, married them to his relatives, and gave them fiefs in Ceylon. At the time when the manuscript was written, a descendant of *Vijaya Raghava* was living in the village close by the fane of *Jambhukesvara*. With the mention of this circumstance, and the statement that such is a full account of Tanjore, the manuscript ends.

Remark.—This manuscript is in a very good state of preservation; and by consequence does not need to be restored. It is historical and valuable. The opening portion very clearly connects the close of the *Chola* dynasty with the commencement of the *Rayer's* acquisition of that country; and fixes the time to the reign of *Achyuta rayer*. This is an important point gained; and one which I had not before met with. The native line of viceroys from *Vijayanagara*, become princes by the fall of that capital, is another acquisition. The other events confirm, or explain, the statements contained in the Telugu manuscript, translated and published in the 2d vol. of Oriental Manuscripts; with some variations, as must always be expected in two distinct, and independent, narratives of the same events. On the whole I consider this document very valuable, as a contribution towards the history of the Tanjore country, during the whole of the 15th and 16th centuries; and as such I strongly recommend its full translation.

Professor Wilson has entered this manuscript in his Descriptive Catalogue, Vol. 1, p. 310, Art. xiii. He mentions two copies; but I have only met with one,* and that one is complete. The notice of the contents which is given in the Catalogue, is entirely wrong; and, if it do not proceed from a mistake in having classed together two different works as two copies merely of the same work, the error is otherwise unaccountable. With the title of *Tanjavur raja Cheritra,* the notice

* See the following article.

entirely relates to the viceroys or princes of Madura; of which the account given is correct, as far as it proceeds, and must necessarily have been deduced from some other authority: but it is entirely incorrect as any exhibition of the contents of this manuscript. I am however too sensible of the difficulties attending these researches to consider the error as any otherwise than unintentional; and, if the native assistants of Colonel Mackenzie gave to Prof. Wilson so false a representation of the contents of this manuscript (being moreover *Telugu Brahmans* by birth) they alone are inexcusable. I had made my own abstract, before seeking out the document in the Catalogue, and comparing the two notices.

4. *Tanjavur Charitra,* or an account of Tanjore—No. 121. Countermark 316.

The above is the English title on the cover; and a *Telugu* title, on the other cover, is *Tanjávùr rájalu púrvóttaram,* or an ancient record of the kings of Tanjore. Both these titles are wrong. On a palm leaf inside, the book is entitled "an ornamented poetical account of the four gates of the fort of Tanjore." This title fully and accurately describes the contents. It contains merely exaggerated descriptions of the four gates, with such inventions, connected therewith, as are natural to the imagination of a native poet. By consequence, whatever may be its value as a poem, it is worthless in any historical point of view. There is a very slight deficiency at the end of the first section, (on the first gate) apparently of a few stanzas: for the rest the manuscript is complete; and though old, yet is in tolerable good preservation. At the end there is a short poem appended, containing praises of *Vishnu;* so much may suffice for this book.

Note.—I do not find this manuscript entered in the Descriptive Catalogue, as a distinct work; and therefore conjecture, that it must have been classed, by mistake, as the duplicate copy of the preceding manuscript. Indeed I have scarcely any doubt to the contrary.

5. *Máliyadri Narasimha Chandasu* (or a treatise on prosody dedicated to *Maliyadri Narasimha* a form of *Vishnu*) No. 94, Countermark 487.

This work which attracted my attention from having the word *Charitra* or history (erroneously written in English letters for *Chandasu*)

on the cover; is by *Kavi Kethana,* and treats on the art of Telugu poetry; giving the laws that should guide the construction of the different kinds of metre. It is of some length, in a beautiful hand writing, and in good preservation. The poem is valuable on the subject to which it refers; but does not bear on the leading object of this investigation.

The work is briefly entered in the Descriptive Catalogue vol. i, p. 353, as "a treatise on Telugu prosody by *Lingaya Mantri* of *Veylatur.*" This name probably designates the author's patron.

Manuscript book No. 33.—Countermark 787.

Section 1. An account of the *Chola rajas.*

Vayal-varzi aditta-cholan was crowned at sixteen years of age at *Caliyur,* west of Trichinopoly. He confided the government to a minister; and occupied himself in the worship of *Siva.* He fostered the *Saiva* religion. A wild elephant greatly troubled the country. A hundred men were sent to take it; and the elephant being pursued met in the way an ascetic, bearing a garland of flowers sacred to *Siva,* which it seized and tore; the ascetic, greatly incensed, killed the hundred men with an axe which he carried, and also the elephant. The *Chola* king, hearing of the circumstance, set out with a force to destroy the adversary; but on coming near, and seeing only a devotee of *Siva,* he kept his followers at a distance and alone approached: he addressed the ascetic in terms of great humility. The ascetic was so overcome with sorrow at having killed the elephant, and people, of so devoted a follower of *Siva,* that he took the king's sword to kill himself, which the king prevented; and a dispute ensued, which should kill himself: the king because his people and elephant had offended so devoted a votary of *Siva,* or the ascetic, because he had killed the elephant, and people, of so exemplary a king. As a child was born to the king on that propitious day, (*Suba-dina*) the child was called *Suba Cholan*; who being installed by the care of his father; the latter died after ruling fifty years. *Suba Cholan* married and came to live at *Jambhukesvaram* where he ruled thirty-five years. Some fable follows, about the birth of *Jambhukesvarer* the tutelary god. The son of *Suba Cholan* was called *Vara-guna Cholan.* He dedicated his wife to the service of the god, in the fane of *Jambhukesvarer.* He led

her to the fane by the right hand; and soon after all her body, except the right hand, was found to have been taken into the image. *Vara guna,* considering that he had taken hold of this right hand, earnestly enquired what crime he had committed, that it should be so marked. Soon after the hand also was drawn in. After some time the god, in the shape of a *Brahman,* appeared to the king, and reproaching him for offering up his wife, invited him to make a sacrifice of himself also, which he is stated to have done; when he rejoined his wife, on a celestial car, and both acquired beatitude. He ruled seventy-five years. *Pugerh Cholan* formed the town of *Uriyur,* and ruled therein, with great credit, for sixty years. By the advice of his *mantiri* (or minister) he engaged in an inroad on the *Chera* king, in order to get plunder; with which fanes and *Brahman*-choultries might be built, and fame in the world acquired. The *Cheran* repelled the invasion; and the *mantiri,* who was also general, only just escaped with his life; but, to make it appear as if he had conquered, he brought a hundred skulls, and shewed them to the king. Among these heads one was discovered to be that of an ascetic, from having braided hair; at which circumstance great grief arising, and the loss of the kingdom being feared, the head was put into a case of gold. A fire being kindled, the king prepared to commit himself to the flames, along with the head; but *Siva* appeared, on his bullock vehicle, and told him his devotedness was accepted; that the fault of the war was his minister's, not his, and commanded him to live prosperously. At his own request, notwithstanding, he was beatified, holding the said skull in his hand. Hence his epithet *Pugerh Cholan,* or " the praised." *Kribala Cholan,* succeeded, and became accomplished in knowledge. Instead of taking one-fifth, as his predecessors had done, from the cultivators, he contented himself with one-sixth part. He acquired great ascendancy, and ruled with great equity. By reason of it, the tiger and the cow rested in the same shed; the cat and the rat dwelt in the same place; the snake and the frog were like mother and child, (symbolical language). Thus his people were without strife, or divisions. Injustice was unknown. Notwithstanding, the king fearing neglect on the part of his ministers, or servants, had a bell erected between two pillars in the public street; proclaiming that if any one was aggrieved, it was only necessary to sound the bell, and the king's attention to the case would be given. He thus ruled with great prosperity, until 64 years of age, without the alarm-bell of justice having been even once rung. After his 64th year he had a son born to him. He greatly rejoiced, and distributed gifts, on having a child born in his

old age. *Vithi-vidangam* was the name of his son; and the usual education was given him. About this time an incarnation of various celestials took place, in the form of a deceptive cow. (The description is here translated, because it may be of service in understanding other symbolical language in other books). " *Parvati* and *Paramesvarer* on " the bullock vehicle, *Brahma*, *Vishnu*, and the remaining 33 crores of " celestials, the forty-eight thousand *rishis*, the *asuras*, the *Maha sactis* " (female powers of gods), setting out from *Cailasa*, came down to be " incarnate on earth, in the following form. The four *Vedas* became " the four legs; *Brahma* and *Vishnu* the two horns; the sun and " moon the two eyes; the *Vindhya* mountain formed the body; *Para* " *sacti*, (the female energy of the Supreme *Brahma*, or first cause) " became the abdomen; *D'herma-devati*, (the goddess of the air), be- " came the udder; the *Sva-loca*, the *Sva-miba*, the *Sva-ruba*, and the " *Sva-uchiyam* (four degrees of beatitude) became the four teats " *Vayavu* (god of wind) became the tail; the atmosphere (*acásam*) " became the two ears; *Lacshmi* became the womb; the sea became " the urine; the eight serpents (at the " eight points" of the compass) " became the intestines; wisdom, was the milk: thus deceptively " (or symbolically) a cow was formed, and *Yama*, (death) was its " calf." (This description is quite sufficient to prepare for symbol and exaggeration, in the incident to be narrated). This cow, with its calf, went from the fane of *Tiyagara-svami* to bathe; and, when returning by a certain street, the king's son *Vithi-vidangam* was making a public procession. The cow and calf became separated in the crowd; and the calf, being bewildered, got under the chariot of the king's son, and was run over by the wheels; being thereby cut in two. The king's son was greatly alarmed; and meditated on *Tiyagarar* (a name of *Siva*, in the form worshipped at *Tiruvarur*). The cow went all over the town seeking for the calf; and, on finding its remains, put both halves together, and sought to give it milk. As it would not receive any, the cow arose, and wept tears. The alarm of the king's son continued. The cow went to the justice-alarm-bell and rung it, on the hearing of which the king, *Kribala cholan*, swooned. On recovering, he directed his minister to go and see what was amiss. The grief of the king, and of his wife, the young man's mother, is described at length. The wife suggested as a remedy, that she would go and fall under the chariot wheels, and be cut in two by them, as an expiation of the crime. But the king determined that the son himself, however precious to them, must in that same manner perform the expiation. In consequence he summoned a hall of audience, and therein formally

commissioned his minister to go, and see justice so rendered. The minister set out in state; and on informing the young man of his orders, the young man gave his consent. The minister was in a sad dilemma; regretting, on the one hand, to kill so intellectual a young man, and bring on himself the guilt of blood-shedding; and, on the other, fearing punishment from the king, if he disobeyed orders. To extricate himself from the difficulty, he slew himself with his own sword. The king's son being astonished, continued his meditation on *Tiyagarar;* expecting some further interposition in his behalf. The king was embarassed at the double accumulation of evil. His wife blamed him, for not listening to her first suggestion. The king rejected it, as not good; and appointed the minister's son to succeed to the crown. The king set out, surrounded by a multitude of deeply grieving people, till he came to his son at *Tiruvatur.* The son remonstrated on the advantage that was about to be given to envious neighbours, such as the *Pandiyan* and the *Cheran;* but the king considering that, if he did not sacrifice his son, there would be no rain, and no crops, ordered the chariot to move on, which ran over the young man, when prostrate on the ground, and cut him into two pieces. The people greatly rejoiced at the spectacle. The two pieces of the king's son were presented before the cow, to its great joy, and the crime of slaying the calf was expiated. The king next considered that he had now to expiate the sin of having occasioned the death of his minister. He accordingly was about to strike himself, when the aforesaid *Trimurti,* and other gods, composing the illusive cow, stayed his arm; and, at the same time raised to life again the minister, and the king's son. The son was installed under the title of *Bhupala Cholan.* The gods decreed that the old king, as a reward, should have the pleasure of seeing his son rule with himself. Afterwards without being exposed to the pain of any future birth, the king (for his merit), the king's wife, and the minister also, received final beatitude. On account of his long reign, distinguished by so many virtues, the gods ordered him to be commemorated by the title of *Kribala Chola,* or "the gracious ruler." He ruled 80 years.

Bhupala Chola being crowned when 16 years of age, and having married when 25 years old, exceeded his father in beneficence, and prosperously governed. In a hunting excursion he discovered a large chasm which consumed, and wasted, the water of the *Caveri* river. He directed a great many men to be employed to fill it up. All their efforts to fill it up were unavailing. Though much money was expend-

ed, and every possible method taken, yet the chasm still swallowed up the *Caveri* as before. The king resided 8 years in the neighbourhood, the better to superintend the work. A *rishi*, living near, told the king that his labour was in vain, seeing that, for some cause the *chacra* of *Vishnu* had entered the earth there; and by consequence the remedy was, that either some enlightened king, or else some virtuous *rishi* (or ascetic) must enter the chasm, and be seated beneath on the *chacra*, when the gulph would close. The king took leave, and returned to his town, where he assembled his council and declared what he had learned. After many donations, he proceeded in state with the intention of casting himself into the chasm. The minister told the *rishi* that if the king plunged into it, the same would be dishonor; but that if he (the *rishi*) entered, it would be to him lasting fame. The *rishi* accordingly entered the chasm, which immediately closed. A fane was built on the spot, called *Tiruvalanchuri* (or the sacred whirl-pool, turning to the right hand). The king and his suite returned to the palace, where he prosperously ruled. But the *Caveri* now did damage by overflowing its banks; and the king went to the wilderness and did penance six years on that account; when *Siva* sent a shower of mud, which raised the embankment and kept the river within its proper channel.

A certain chief by the favour of *Ranga svami* (*Vishnu*) built the fane of *Sri-ranga*, with the spoils which he had plundered from the people, even to the extent of snatching away the *táli*, or sacred token of marriage. Many labourers were employed, and a great balance remained due to them which the said chief had not the power to defray. He in consequence, inveigled them all into a boat, promising to pay them in the middle of a branch of the *Caveri;* and, when there, he upset the boat, and they all perished; but as this was a sacrifice to *Ranga svami*, all the labourers so sacrificed obtained beatification. Hence the spot acquired the name of *Colidam* (corrupted into Coleroon).*

The king, expending a great deal of money, had the *Caveri* conducted to the westward of Combaconum, and opened channels for irrigation to a great extent around, effecting a communication between the *Caveri* and Coleroon rivers. Of the additional produce so obtained, he took one-sixth, and gave the rest to the people. At Combaconum he built many fanes, and prosperously ruled. His reign lasted 70 years. He had no son; but his wife was three months pregnant. The *Pandiyan* took advantage of this time to attack the kingdom; and the aforesaid *Chola* king being worsted, took refuge with *Cumbhesvarer*,

* This is a current tradition as to the origin of the name of the Coleroon, the meaning of *Col-idam* is "the place of slaughter."

and did penance in the shrine sacred to him: after a time he obtained beatification. As he had done so much benefit to the country, in the embankment of the river, he was called *Cari Canda Cholan.*

Appendix.

The *Chola rajas* were so called, because of their being of the solar race. (The derivation of *Chola* from *Surya,* is not clear).

Uttunga Cholan; *Kulottunga Cholan*; *Tirumudi Cholan*; *Aruntapa Cholan*; *Rajendra Cholan*; *Mananithi Cholan*; *Ala-peranta cholan*; *Vara-guna Cholan*; *Ala-peranta Cholan*; *Ariloru kadamai konda Cholan*; *Anatána Cholan*; *Cádu vetti Cholan.*

Another list of the *Chola* princes is given, with the explanation of the names, and shewing three different names, sometimes given to the same individual. The period of reign, in all, is too great. There were in all 23 kings of this race, it is said. After *Cari Cara Chola* the race ceased.

Remark. The preceding paper is of importance in many points of view; and the origin of the fane at Seringham, as herein stated, needs to be compared with other documents.

Section 2. Discourse between a Tiger and a Cow.

This account is either a mere fable; or else a symbolical account of some transaction occurring near Conjeveram; in which a cow, seized by a tiger, pleaded for a loan of life, on certain reasons alleged promising to return on a fixed day; the tiger gave the required leave; and the cow punctually returned.

The section is incomplete; and since it professes to be translated from the Tamil, which original work, if I mistake not, is found in the collection, any consideration of it may be deferred till that work comes under notice. This fragment, to the best of my judgment, is useless.

Section 3. Abridged account of *Isvara, Vishnu,* and *Brahma.*

This paper contains a description of the divisions, and residents, within the regions of *Vaicont'ha* and *Kailasa;* similar, or the same, (difference of language being excepted), to the Tamil MS. translated

and printed in Or. Hist. MSS. vol. 2, App. B. Any further notice of it here is, by consequence, superfluous.

Section 4. Account of the Temples of *Canchi,* or Conjeveram.

The legend of the place as collected by *Cavelly Vencata Boriah.* It was a chosen place by *Siva. Parvati* shaded the sun and the moon, being the eyes of *Siva ;* by reason of which darkness covered the earth; and to blot out the fault, so committed, *Parvati* came down to do penance under a mango-tree, at that place. *Siva* sent various rivers, the orgin of which are mythologically stated.

Visvacarma built a temple, and after many intermediate matters (which however are not stated) in the time of *Crishna Rayer,* even as he had re-built many other temples, so he re-built the fane of *Ecámbar-isvara.* There are other mythological, or *pauranic,* statements of the foundations of other places, based on fables concerning *Brahma, Vishnu* and *Siva.* At a later period there is mention of four towns around, to which roads led from Conjeveram; that is 1. *Mahabali-puram*—2. *Dévalâpuram* to the south—3. *Virinchipuram*—and 4. *Narrayanapuram.* (1 *Vaishnava*—2 *Saiva*—3 *Saiva*—4 *Vaish-nava*).

Vishnu, born as *Nareda,* introduced the *Bauddha* system; to expi-ate which fault, he was required to do penance at Conjeveram. The *Jainas* spread through the country; and had a settlement near Con-jeveram. *Sancaráchárya* came thither; and, overcoming the *Jainas* in disputation, re-established the *Hindu* religion, according to his own tenets. There is still however a small town near, called *Canchi* of the *Jainas.* Another existing evidence of the ancient prevalence of the *Jaina* system at this place is, that in the walls and edifices built by *Crishna Rayer* images of the *Jaina* system are wrought in with the other workmanship.

Brahma performed a great sacrifice at one of the sacred hills at Conjeveram; in the fire of which *Vishnu,* as *Varada-raja* was born (being the form of *Vishnu* worshipped in the *Vaishnava*-fane at Con-jeveram). The elephant of *Vishnu,* gathering lotos-flowers from the tank, had its legs bitten off by an alligator, and *Vishnu* slew the alli-gator with his *chacra* (an event commemorated in processions by car-rying round the image of an elephant without legs). Notice of the different *Váhanas,* or vehicles used for the processions of the image of *Vishnu,* at the great annual festival in the month of May.

Notice of the images within the *Saiva-fane* of *Ecambesvara.*

The origin of the place is lost in the remoteness of very ancient time. The image of *Camacshi* was originally of clay. Three towers, and the inner shrine, were constructed by *Triyambaca rayalu.* In one shrine there is an emblem of *Siva,* at which *Rama* (*Chandra*) performed homage, in order to expiate the sin of killing the *racshassas* of the country. There is also an image of *Perumal* (*Vishnu*) to commemorate the cure of *Siva* (after swallowing poison with the *amrita* in the *Curma avatara*). Brief mention of other images connected with similar legends. A repetition of the fable connected with the mango-tree, mentioned at the beginning. Some porches and shrines were built by *Tenagara pillai* of Tanjore. Other notices of different localities of the fane. The hall of a thousand pillars is built over the place where was the pit in which *Brahma* performed his great sacrifice ; there is a sacred pool in the midst. In the *Bharata Candam,* or continent south of mount *Himalaya,* there are one thousand and eight fanes, of these one hundred and eight are special ; and of these latter twenty-eight are within the district of Conjeveram. The names of these twenty-eight fanes are given ; and also a specification of sacred pools (*tirt'has*) connected with the said fanes.

Notice of the *Ammen kovil,* or fane of the local goddess.

The shrine was built by *Vira-deva maha-raja.* A tower was built on the south side by *Pallala rayuda.* To the west of the goddess's shrine there is an image of *Sancaracharya,* also of *Durvasa rishi.* There is a golden image of *Camacshi,* termed *Bangara* (the golden). An image of *Santana Ganapati,* paid homage to by the childless, who desire to have children. Other minute details. Just before the spot on which the image of *Camacshi* is placed, there is a chasm, hollow or cavern, in the earth (*Sancaracharya* is traditionally stated to have concealed the image therein for greater safety, and it is popularly reported that the original *Camacshi* is still hidden therein).

DETAIL OF WORLDLY POWER.

The names of a few monarchs are given, coming down to the later *Rayers,* and *Gajapatis.* Lengthened periods are ascribed to the earlier rulers (gathered from the *Puranas*) ; but nothing is stated that can add to, or correct, other information on these subjects.

Rulers at Conjeveram.

Buda linga paiya—Julu pubar Khan (i. e. Zulfecar khan)—Ali Muradd Khan—Davud Khan—Sadulla Khan.

Here the writer is more at home. A notice is given of the events connected with the Mahomedans of Vellore and Arcot; through the wars in the Carnatic, and down to the settled rule of Mahomed Ali. It is brief, considering the multiplicity of the transactions; but may have its merit, as a testimony written from tradition, near the time and place of the events recorded, and by a native, acquainted with native opinions.

Canchi Mahatmyam.

Another brief version of the legend noticed at the commencement. That is to say, *Parvati* shaded both eyes of *Siva* which produced darkness over the world, and troubled both gods and men. As a punishment for this legereté, *Parvati* was sentenced to become *Cali,* and then to go down to earth to do penance, which took place at Conjeveram. After acquiring merit by that penance, in which her form included several rivers, *Siva* asked what gift she required; and the reply was, that he would come and marry her at that place. To this request he consented; and when he came he was accompanied by *Brahma* and *Vishnu,* the former of whom performed a great sacrifice. *Sarasvati* and *Lacshmi* were born from the eyes of *Parvati* and the marriage between *Brahma* and *Vishnu,* and their consorts was celebrated, at the same time, as the marriage of *Siva* and *Parvati.* The place hence acquired great celebrity. The *rishis,* who were present at the ceremony, each one established an emblem of *Siva,* bearing his own name ; and on the eight points of the compass, there are eight *Durgas* as guardians. There is also specially a fane of *Bhairava,* a ferocious form of *Siva.*

Remark.—Any information connected with Conjeveram acquires importance from the celebrity of the place, and its great influence as a metropolis of idolatry. The legend of *Parvati* shading the eyes of *Siva* is *pauranical* ; but I think it deserves special notice, though perhaps not in this place. If I understand the import aright it designates something differing from any eclipse ; but I would wish to examine the subject, in connexion with other records, before offering any opinion. The circumstances concerning the *Jainas* tend to elucidate some parts of the *Chola-patayam* ; and it would seem as if *Sancaracharya* were the *Saiva* teacher therein referred to. The antiquity of the structures at *Conjeveram* cannot be great, since they are posterior to

the time of *Sancaracharya*; but that the place had some little note under early *Chola* kings, before the ascendancy of the *Jainas*, seems conjecturally probable.

This paper has been restored from small writing, aud pale ink, to a more permanent form.

Section 5. Account of the *Setupatis*, or feudatory chiefs, at *Ramnad*.

This section was before restored in Vol. I., for reasons stated in the accompanying abstract then given. See 1st Report, article B.

Book No. 49.—Countermark 739.

Section 8. Account of the *Vellugotivaru*, descendants of the *Vencata-giri-raja*; with an account of *Vencata-giri* in *Telingana*.

Stanza—the *Velma*-race were born from the feet of *Vishnu*.

In the village of *Anumanagal* a son of *Sheyur Polu Reddi* of the tribe of *Anumagantu*, with his servant named *Resan*, when ploughing a waste piece of land, discovered a hidden treasure, and an aerial voice was heard, telling the master (*Shevi reddi*) that if he offered a human sacrifice he might safely take possession of it. While in great doubt his servant *Resan* voluntarily offered to become the sacrifice; on condition that the *Reddi* should engage, on behalf of himself and of his posterity, that he and they would take the cognomen of *Resala*, and always marry the first wife from out of his (*Resan's*) pariah tribe. To these conditions the *Reddi* assented; and, offering his servant in sacrifice to *Bhairava*, took possession of the treasure. At a subsequent period, while surveying his now very extensive fields, a storm came on; and while he stood under a tree a thunderbolt descended close to him, which he took up without fear, and then the hamadryad of the tree appeared to him, and made him great promises for the future. Two of his inferior workmen had taken refuge under the same tree; and unseen by him, had seen and heard what passed; the report of which they carried to the village, where it was much talked of, and at length reached the ears of the *Ganapati*, or prince of the country, who sent for *Shevi-reddi*, and after flattering distinction, gave him certain banners, and ennobled him as feudal lord of a country producing a lac annually. He also received the title of *Pillala-marri Betala*

Ravu, from the *Betala*, or hamadryad, before mentioned : he also received certain immunities of a super-human order.

2. He had three sons named respectively, *Dama nayadu*, *Prasaditya-nayadu*, and *Rudra nayadu*. Two were much distinguished; *Dama-nayadu* the eldest, by skill in the use of the sword, by great advantages obtained over others, and the acquisition of wealth and honours. The second *Prasaditya* was an officer of authority under *Ganapati deva rayalu* ; and had a hand in the circumstances of the succession after his death ; whereby the royal authority at *Oraganti* devolved on *Pratápa Rudra*.

3. The aforesaid, *Dama nayadu* was the head of his race. Two of his many sons, by name *Vennama nayadu* and *Sabbi nayadu* were most distinguished.

4. *Vennama nayudu* became head of the race. His son was *Viradacha nayadu* who with his cousin, son of *Sabbi nayadu* were successful in their incursion against neighbouring places ; extending to *Canchi*, and to the *Pandiya* kings. The Mussulmans are also mentioned as beaten, in defence of another chieftain. The son of *Vennama*, named *Singama Nayadu* became head of the race ; who was slain before the fort of *Jalli palli*.

5. His two sons *Anupota Nayadu* and *Madha nayadu* assembled a great force, and overcoming all enemies, carried their power to an increased extent ; adding to the fame of their race, and distinguishing themselves by donations to the *Brahmans*. An extravagant account is given of the number of *rajas* conquered by them ; the *Chalukyas* being among the rest, and also the forces of the *Gujerati-raja*. The two chiefs *Anupota*, and *Madha*, divided the country into two parts ; and ruled in distinct towns, each one over his portion ; the first in *Raja konda*, and the second in *Deva Konda*.

6. The son of *Madhu*, named *Peddu Vedagiri Nayadu*, added to former conquests, and acquired additional trophies.

7. *Pedda veda giri nayadu*, had two sons named *Rama Chandra*, and *Cumara Madha Nayadu* ; who made some conquests.

8. The sons of *Cumara Madha*, were *Chinna veda-giri* N. and *Lingama* N. who was slain by another chief, and *Lingama* N. slew him in return who also overcame some others.

9. *Lingama Nayadu's* son was *Parvata Nayadu*, whose son was *Lingama Nayadu*.

10. The race is carried forward through a few other names.

11. Some strifes of neighbouring feudal lords.

12. Records assistance rendered to the *Rayer* in suppressing some opposers at *Chenna-patana.*

13. *Singama Nayadu* was versed in learning.

14. *Dimma nayadu* is said to have conquered the *Gujerat, Chola,* and *Pandiya rajas.*

15. *Dherma Nayadu,* conveyed to his posterity the title of *Ravu-varu.*

16. The succession of the race is carried on down to No. 28, *Vencatadri Nayadu,* who ruled at *Vencata-giri*; and in his time the name of the *Vencata giri* kingdom originated. The name of that place from books, and inscriptions, is found to have been *Kal-mali,* from the name of a local goddess, worshipped by a few cottagers. One named *Gobari Bukha raja* had built a fort and resided there: he was driven away by *Vencatadri* who took possession; changed the name of the *Sacti,* and caused it to bear the name of *Vencata-giri* from *Vishnu* worshipped at *Vencatáchalla* (Tripety) distant four *amada,* or *kadams,* (40 miles). His son was *Rayapa Nayadu,* who succeeded to the government. No. 29 down to 31. Some other names, down to *Yasama Nayadu,* and *Singama Nayadu,* by whom a great battle was fought with other opposing chiefs in a plain near *Utra Melur* in which they gained a victory Sal. Sac. 1523 (reference to another book called *Sisamalica* No. 8): its substance given here. (The scene was in the Tamil country, *Madurantaca,* being mentioned as near the place of combat). The Mahomedans were mingled up in the affair, in connection with Ginjee and Vellore. Down to No. 34, many details are given, too complex for abstracting; among which it appears that the *Vellugotivaru* were driven from their native district by the Mahomedans, who took it into possession; that *Vencata-giri* was a part only of the *Chandra-giri* kingdom; that the Mahomedans acquired an ascendancy, and that certain cruelties were attendant on *Zulfecar Khan's* incursion into the Carnatic; that *Vencata-giri* was assumed into possession by them; but, by solicitations at the court of *Golconda,* a restitution of this, and some other districts, was made, on condition of paying tribute. Certain grants as made by persons holding privileges under *Aurungzebe* are mentioned in the MS. as deduced from inscriptions: one of the dates is 1618 Sal. Sac. (A. D. 1696).

35. Some other names, and date of a grant by *Pedda Yasama Nayadu* in Sal. Sac. 1620. With him the line of *Vellugotivaru* ceased; and the race was transferred to adopted children.

36, 37. Some other details; an invasion of Mahomedans from Arcot, who plundered and burnt; and in the disturbance many records

perished. When the invasion had swept by, *Cumara Yasama Nayadu* again resumed possession.

33. *Bangaru Yasama Nayadu* (the present *raja*): his agent *Sethu Rayen*, went to Madras, and procured an intervention of the Company's troops to confirm him in his authority. Details of *Peddana* and *Subrahmanyan* the agent of *Bangaru Yasama Nayadu*, leading to an awful tragedy. *Peddana* had accused *Subrahmanyan* in the Chittoor court, of firing a village, and *Subrahmanyan* told him that, in consequence he would have him carried out by the legs dead, like a dog. In prosecution of his design, he constructed a variety of annoyances, and got up a suit in the Zillah court. *Peddana*, when summoned, refused to appear. When an attempt was made to seize and sell his house, he forcibly ejected the officer of the court; in consequence a summons was sent by the hands of a captain of sepoys with a company under his command. *Peddana*, not knowing the English customs, and from the high spirit of the *Velmavar*, had prepared his house so as to have all the inmates killed, and the house set on fire. On the captain making a demand of his appearance at the court to plead, he went inside, and shut the door; but, losing heart to transact all the tragedy, it was managed in part by a servant. The result was the murder of all the inmates, *Peddana* included. The door was then thrown open. The officer grieved went away, and left the disposing of the bodies with *Bangara Yasama* and *Subrahmanyan*, who as they passed spat on them, and had them carried out heels uppermost as dogs are carried; and then not buried, but merely covered with a little earth, exposed to beasts and birds. The Chittoor court, had an examination of the out-door servants; but no guilt attached to them. The MS. leaves off, without any mention of the death of *Subrahmanyan*, which is otherwise known to have since occurred by a cancer on his back, slowly and with extreme torture. *Bangaru-Yasama* is said to be still alive.

Remark.—The preceding abstract is not much more than an index. A translation of the entire manuscript may be made by me another time. A notice of the manuscript is entered in the Des. Catal. vol. i., p. 306. It is more than usually correct as far as it goes; and will be found, in most of the leading points, to harmonize with the foregoing outline.

D:—MAHRATTI.

1. A roll of country-paper, without title, mark, or number.

The contents of this roll consist of copies of three letters addressed by *Ragunatha-yadava* to *Nána Farnis*, relative to a disputed succession to the throne at Poonah. In answer to communications from *Nana Farnis* (the minister of state) his correspondent Ragonauth gives him details of the strength, and munitions of the subordinate *rajas* and chiefs, the Nagpore *raja*, and the Guicovar, or *raja* of Gujerat being among the number. Various details are added as to battles, and connected circumstances. The letters are written in the midst of the circumstances which they describe, and might be of use to a historian engaged in narrating the events of that particular period, comparatively recent; but they are too minute, and local, to admit of abstract: which besides does not appear needful, since a brief index pointing to the existence of such correspondence may here very well suffice.

The roll attracted attention from its decayed and injured condition. A little trouble being sufficient to put it into a permanent form it was restored; for papers of such a sort may acquire an additional value with time.

2. Another roll, a little larger in size was found on examination to have been filled with statistical details, concerning the boundaries, products, revenues, and similar matters, of the Peishwa's dominions; of which Poonah was the capital. But being torn, damaged, transposed, and in part lost, any attempt to restore it was given up; and the loss probably is not of any consequence.

3. Copy of an ancient record of the rulers of *Chandra-giri.*

Manuscript book No. 45.—Countermark 735.

This book on examination proved to be an interesting (though very brief) chronicle of the *Yadava* race, which formed one of the early dynasties of rulers in this country.

The record is said to have been extracted from all the documents in the fort of *Crishna Rayer* relative to the *Rayer* dynasty.

The commencement of the *Yadava* dynasty is dated from Sal. Sac. 731 (A. D. 808-9) beginning with *Sri-rangha Yadava rayalu*: the dynas-

ty is continued downwards to the foundation of the fort; concerning which there is a little, apparently fabulous, matter. The fort was first called *Deya Durgam* by *Yadava Rayalu* in Sal. Sac. 929 (A. D. 1007-8). At a later period one of its rulers meditated an invasion of *Vijayanagara ;* but abandoned his intention on discovering the power and resources of *Crishna Rayer.* The conquests of the latter are briefly alluded to, and the circumstance of the *Gajapati* prince giving his daughter to *Crishna Rayer,* to cement a treaty of peace with him, is mentioned. The date of *Crishna Rayer's* death is fixed on the 8th of *Carticeya* month, Sal. Sac. 1452 (19th or 20th November 1531). In all twenty-seven princes of the *Yadava* race ruled, during 339 years (an average of twelve and half a years to each). The name of *Deya Durga* was changed to *Chandra-giri,* by one of the race; for reasons specified. The country came under Mahomedan rule in Sal. Sac. 1587 (A. D. 1665-6). The names of these rulers are given: they governed, in all, during ninety-five years.

There follows a descriptive mention of the fanes, and other sacerdotal buildings, erected, or endowed by the different rulers of this dynasty ; Tripety being the principal one.

Remark.—This document claims a full translation. It possesses considerable internal evidences of authenticity ; and its evidence in history is required. The book is damaged, though to a less degree than many in this collection. I have had it restored, for the being better preserved ; pending its full translation.

E: -SANSCRIT.

Palm-leaf, book No. 17.—*Grant'ha* character.

Copy of an inscription, on copper, of *Sada-Siva Maha-rayer.*

Recapitulation of the lunar race, down to *Yayati* ; of whose line *Isvara-rayen* was born. *Narasa-rayen* ; *Timmaji-Narasimma-rayen* ; *Vira-Narasimma-rayer* ; *Crishna-rayer* ; *Achyuta-rayer* ; the two latter were half brothers, sons of *Vira-Narasimma-rayer*, by different mothers : (here some letters are lost, or left out, so that there is no intelligible meaning) *Sadasiva rayen.* In his time the inscription was recorded Sal. Sac. 1478 in the *Nala* year in *Margara* month, on Sunday, a new moon day, and eclipse. At which time, peculiarly adapted to religious donations, certain lands and numerous villages were given by the *Rayer*, being then in the shrine of *Vitalesvara svami* on the banks of the *Tungabhadra* river, to *Ramanujácharya* at *Sri Perambur*, the different villages and lands being in the neighbourhood of that place. The usual *sloca* at the close is not given ; a leaf perhaps being wanting.

Note.—It is doubtful whether the donation was to *Ramanuja* in his life time, or to a shrine first established by him ; the latter, from dates, and attendant circumstances, seems to be most probable.

Conclusion.

My report for the three months inclusive from the beginning of October to the end of December 1837, here finishes. It may perhaps appear that the abstracts herein given offer results of considerable importance. It is however superfluous to add any further observations to those already made, at each step of the investigation.

Madras, *December* 31, 1837.

II.—*Observations regarding the Site of Kurkhi, the Residence of the Pandyan Kings of Modura.*

In the 16th No. of the Madras Journal, a difference in opinion was shewn between Dr. Wilson, the Boden Professor of Sanscrit at Oxford, and the Reverend William Taylor of Madras, regarding the locality of "Kurkhi" the ancient residence of the Pandyan kings of Madura. Dr. Wilson supposes it to have been the seaport town now known by the name of Killakarai in Ramnad. Mr. Taylor asserts that it was the original name of Madura. The derivation of the word Killakarai, which is given by Mr. Taylor in his "Observations on Professor Wilson's Historical Sketch of the kingdom of Pandya," sufficiently controverts the notion of its being a corruption of Kurkhi, or, as it is more correctly written by Mr. Taylor, Gorrkai: but that gentleman has not stated the authority upon which he founds his opinion, that this was the native name of Madura in early times; and, if any dependance is to be placed upon the authorities followed by Dr. Wilson, it is against such a conclusion that the town of Madura is represented to have been built not till after the Pandyan kings had removed from Gorrkai and fixed their abode at a place called Kalyánapûr.

There is a small town in the district of Tinnevelly which bears the name of Gorrkai, and the natives of these parts assert that it was once the residence of the Pandyan kings: in attestation of which a legend is related, important only as it seems to prove that the belief is traditional and generally admitted. One of the kings of this dynasty, it is said, having inadvertently caused a man to become jealous of his wife, by way of expiation cut off his own hand—when, in consequence of his integrity, a new limb immediately grew up. Some versions state that the new hand was of gold, whence the place received the name of பொற்கை (Ponkai) "golden hand," which afterwards became corrupted into the present name கொற்கை (Gorrkai): others however derive the name from கோ (Go) a king and கை (kei) hand, written and pronounced, for the sake of euphony, Gorrkai, meaning "the king's hand;" a more rational proof, however, is offered in the fact that at the great Saiva pagoda at Tinnevelly, the earth used in the ceremonies at the annual festival is brought from this place, Gorrkai,

distant about 30 miles, as having been the habitation of Vamsa Colasakhara Pandyan who built the temple. This circumstance, supported by the coincidences which I am about to point out on comparing the situation of Gorrkai in the Tinnevelly district with Dr. Wilson's Historical Sketch, inclines me to believe that this is the place spoken of by the authority from which the Professor quotes.

Gorrkai is situated on the northern bank of the river Tombrapoorney, not far from its mouth, and within a short distance from the towns of Pinnacoil and Koyelputnum upon the coast, to which belong a considerable number of the vessels employed in the pearl fisheries, both at the beds upon the coast in the immediate neighbourhood and those at Manar in Ceylon.* There is no town in the neighbourhood of Gorrkai that now bears the name of Kalyanapur: but there is a place about 20 miles west of it called மணப்படைவீடு (Manapadeividoo), a name of similar import signifying "the place of the marriage," which, like Gorrkai, is believed by the natives of this province to have once been the habitation of the Pandyan kings. This town is south of the river, and, supposing it to be the place mentioned by the name of Kullyanapúr in the Historical Sketch, it is easy to conceive that a party might, during the rains, be prevented for a month from crossing over to Gorrkai. The town built by Kula Sek'hara and called after himself is to this day a flourishing seaport and retains its original name. The distance from Cape Kumari (or Comorin), however, is greater than that mentioned in Dr. Wilson's paper, being about 45 miles. It may be found in Arrowsmith's new map, mis-spelt Golasairpatam, immediately to the north of Point Munahpaud. Its distance from Gorrkai is about 17 miles, southward. Neither Gorrkai nor Manapadeividoo are of sufficient size or importance in the present day to have a place in the map; but it is not to be marvelled at that they should have dwindled into insignificance during the period of nearly three thousand years, which, according to Dr. Wilson's computation, have elapsed since they ceased to be seats of royalty.

I am indebted to an intelligent native, Soolochenum Moodeliar, the deputy sherestadar of Tinnevelly, for pointing out to me the following lines extracted from the 45th Tiruvilliadel, which perhaps may be regarded as establishing the pretensions of the Tinnevelly Gorrkai beyond question.

* Vide note at foot of page 180, No. 16, Madras Journal of Literature and Science.

Singular.

କନ୍ଧ – Khond.

କୋଡୁଣ୍ଡୁ – Codoowndoo, a Khond Man, or single Khond.

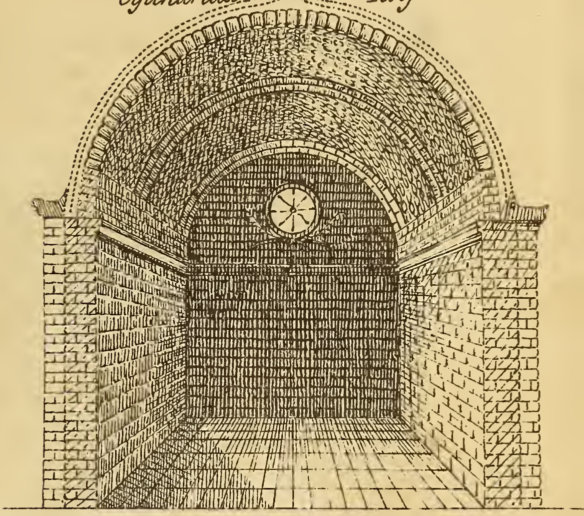
(Ooriah Characters. see p. 89 of No. 18)

Plural.

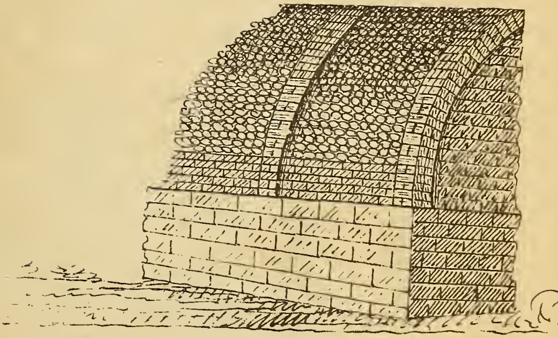
କନ୍ଧମାନେ – Khondmany. also the vulgar write and say; Khondlogo – 'Khonds', or the 'Khond People'

କୋଡୁଲୁ – Codulor, Khond People, or Khonds.

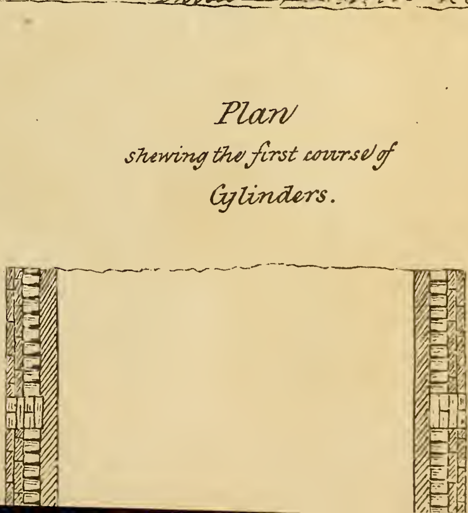
Section of a Cylindrical Roof



Elevation



Plan shewing the first course of Cylinders.



45th Tiruvilliadel—verse 38.

நிலத்தைக்கிளைத்துப்பிலங்காட்டிநிமிர்ந்ததூள்வான்
றலத்தைப்புதைப்பத்தனியெனவரவுநோக்கி
வலத்தைப்புகழ்ந்தான்வியந்தான்சிலைவாங்கிவாளிக்
குலத்தைச்சொரிந்தான் பொருநைத்துறைக் கொற்கை
வேந்தன.

The only part which needs to be interpreted is that the Pandyan king is designated "the Lord of Gorrkai situated at a ford of the river Porunei" (*hodie* Tombrapoorny).

III.—*Memorandum regarding Syrian or Cylinder Roofs.—By Captain* George Underwood, *Madras Engineers.*

This description of roof, without any wood-work, is composed entirely of hollow earthen-ware cylinders (formed on the wheel) which are about 9 inches long, 5, 5½, or 6 inches diameter at the larger end, and about 3 or 3½ inches diameter at the smaller. They much resemble in shape a quart bottle with the neck cut off, the bottom being flat. The smaller diameter of these cylinders must of course vary according to the nature of the curve, very large semicircular spans or segments of large circles requiring a less diminution than when the arcs are small. The centreings being prepared (and very common ones are sufficient), having commenced the intended arch with solid brick and chunam on the two side walls of the room, and having raised these portions to a height of about 3 feet or about ⅓ of the curve on either side, so as to form solid haunches, the hollow cylinders are laid side by side in chunam along the length of the room with their small ends pointing inwards. On these, in the intervals between every two well imbedded in chunam, another row is now laid, and so on row on row (both sides of the arch rising equally), till the last course forced in on the top completes the whole. This last line of cylinders of course is vertical, and care must be taken during the construction to press every row well against the centreing,

and to beat into the interstices as much brick, jelly, and chunam as possible, to render the mass compact. Over the cylinders thus packed, chunam well diluted is plentifully spread; and on the summit of the arch in large curves, a sufficient quantity of jelly and chunam is laid to raise that part a little, and thus to prevent the lodgment of rain and moisture. Two coats of flat tiles in chunam are afterwards placed over the arch and the exterior polished with fine chunam. The haunches being about 15 or 18 inches thick in circular spans, and more in others, the lower portion of the cylinder arches will need to be thickened with jelly, or brick, and chunam,to produce an uniform slope in the the extrados before the flat tiles are placed. The centreings should not in my humble opinion be removed before the arch is thoroughly dry, for the materials being slight, and fragile while *wet*, a sudden settlement at that time is very dangerous, and much more mischief is to be apprehended than from any slight improbable sinking of a well turned curve composed of light pottery, extremely strong when dry and surrounded, as it will be then, by firm cement, and upheld as it were by the outer coatings of an equally powerful substance. The reasons which prompt the speedy removal of centreings to heavy stone and brick arches, do not here exist, and as with the common native centreings of mud, the gradual sinking of the various parts can and does take place during the construction, from the flexible nature of such supports, I certainly prefer them for cylinder roofs. The centreings used at Bangalore were of the roughest kind and apparently very weak; indeed on one occasion during my absence, so careless were the workmen on this point that a failure of one, before the work was dry, caused the ruin of a large arch and the irreparable injury of the outer verandah. The centreings were principally composed of crooked old bamboos laid over and tied to jungle-wood Malabar trusses, supported on sun-burnt brick and mud pillars—sun-burnt bricks were packed closely together on the bamboos, earth strewed on these, and a plaster of wet mud applied over all to render the curve smooth, which was further effected by a coating of dry sand. Strong posts of timber are preferable to the weak brick and mud pillars, and the trusses are about nine feet apart. When the centreing is to be removed, the bricks and earth along the middle of it, that is immediately under and near the key stone, should be carefully picked out first, and cleared away from between the bamboos; then equal portions on either side simultaneously to a distance of about three feet, after which the whole may be rapidly taken down. As a proof of the vast strength of these cylinder roofs, I must record the fact, that, on two occasions, owing to heavy

rains having completely saturated the mud and earth of the centreings before the arches could be completed, the former became when dry so caked to the interior of the roof, that, after the severe blows of a crow-bar proved ineffectual, a hammer and chisel were resorted to. Many of the cylinders were broken at the smaller end by this violent process ; yet (notwithstanding several men were walking over head at the same time) not a crack occurred. It must be remarked that, at certain intervals along the roof, and at each end, arches of solid masonry, one and a half feet broad and nine inches deep, are turned from wall to wall as aids and binders to the cylinders which were built up between them, and at the same time : so that in a building sixty feet long forty-two feet only were really composed of cylinders. The following memorandum, taken on the spot, may serve to facilitate calculations for various spans, but as the actual cost of material will vary much at different places, and the workmen will necessarily at first be rather slow in their operations, while such strict and constant surveillance may not be always attainable, the actual expenditure will be a little greater perhaps, though the quantities ought not much to exceed the estimate I have formed. The operations connected with the construction of these roofs, are really so very simple throughout, and ordinary bricklayers so promptly comprehend them (those at Bangalore being now highly expert in the matter), that it is surprising such excellent permanent coverings to houses, godowns and stabling have not become more general—one-half the weight of a tiled roof (as subsequent statements will prove) one-third cheaper than the same formed of teak-wood rafters, reapers, &c. &c. one-half the price and weight of a terrace roof, while in duration, cleanliness, coolness and appearance it far exceeds every other, the Syrian or cylinder roof on the score of comfort and economy, deserves the highest patronage in India, where white ants, rats and vermin are destructive and annoying.

For a room 33 feet × 21 feet—simicircular arch = 1088 superficial square feet.

CYLINDERS—5 inches largest diameter, $4\frac{3}{4}$ inches smallest diameter.

60 { (Now in the above curve there are 32·97 feet, or 395·64 inches,and it would require 70 cylinders (5 inc. diameter) to go over but with chunam and deducting for solid brick and chunam curves at the haunches (about 3 feet on each side) 60 only were found to be necessary (quarter less than the whole estimated).

70 { Again there are four brick and chunam binders 1 foot broad each, and therefore 70 cylinders only were used in the length.

4200 at 6 rupees per 1000 = Rupees 25 0 0

CHUNAM—about 50 candies at $1\frac{1}{2}$ Rs. per candy = 75 0 0

FLAT TILES—7000 at 12 As. per 1000 = „ 5 4 0

BRICKS—for binders and haunches

8000 at $2\frac{1}{2}$ Rs. per 1000. = „ 20 0 0

Materials....Rs. 125 4 0

CENTREING to erect—8 men at 4 fanams per day for fixing timbers.................................. 32 fanams.

Laying, bricks, mud, &c. &c. and bamboos

16 men at 4 fs.......................... 64 „

40 women at 1 fanam.................. 40 „

4 coolies for mud, at 2 fs.... .... 8 „

about 12 0 0

Taking down centreing 4 men 5 days 80 fans. about 6 8 0

BUILDING ARCH.—The same number of men and women as above $1\frac{1}{2}$ day or............. Rups. 18 0 0

Laying flat tiles, &c. &c. and chunaming outside 4 men 2 days 32 fanams about................Rups. 2 8 0

Roof without ornament and in the rough though quite water tight..................Total Rups.....164 4 0

Fine chunam inside and outside and ropes, timber for centreing and sundries not included, as these last were carried to account elsewhere.

A TILED ROOF with teak rafters, reapers, &c. &c. shorter by 3 feet would cost 230 Rups. in the rough....230 0 0

ROOM 20 feet × 17 feet span—actual observation.

1555 baskets of chunam were used for the cylinder roof—3 baskets contained 10 seers of chunam and 10 seers of sand—Therefore 518 marcals of chunam were used—25 candies and 18 marcals.

ROOM 21 feet × 15 feet span—semicircular—about 450 superficial square feet.

CYLINDERS—5 inches diameter larger end—52 were found to go over, and owing to two brick and chunam binders at the ends—45 were required for the length.

2340 required for the roof at 6 Rs. per 1000 about Rs.	14	0	0
CHUNAM...................................... ,,	12	0	0
FLAT TILES.—5000 at 1 Rupee per 1000..........	5	0	0
Workmanship for this and chunam..	10	0	0
Workmanship for laying cylinders, erecting, centreing, and- removing do.........	20	10	0
Total Rupees....	61	10	0

Sundries not included.

Spans of 9 feet, 16, 18, and 20 were tried, the result of the whole appears to be that in large spans $4\frac{1}{2}$ cylinders per square feet superficial, seems to be a fair allowance; and $5\frac{1}{5}$ cylinders in moderate spans of 10 and 15 feet, there being less of the arch composed of brick and chunam.

CHUNAM about 12 candies to 1000 chatties, a fair allowance, fine chunam and ornament not included.

FLAT TILES, twice as many as the cylinders used (for two coats).

AVERAGE COST of the roofs in the rough, without ornament, about 6 superficial square feet of roofing for 1 rupee.

The arch may be very highly ornamented inside, by allowing the brick and chunam binders to project from the cylinders about 2 inches. These parts embellished as Grecian soffits with stars, flowers, wreaths, &c. and a device at the key stone for chandeliers, while the retired cylinder portions are formed into tablets, give the whole a pleasing and cool appearance; or ceiling cloths may be adopted at the cornice to avoid such expense. Windows can be placed above in the arched end walls of various rooms, or small circular perforations may be safely left at intervals along the length through the haunches above the drains; some openings above whether windows or otherwise are desirable certainly, as well for the coolness as to destroy the echo which slightly exists in all arched rooms not much furnished. The walls which supported the large 21 feet arches were partly brick and mud, but mostly formed with chunam. They were about 13 feet high, with

so many lofty and wide doors, that the solid parts were very slight, yet the thickness of these walls, $1\frac{1}{2}$ feet have been found to answer perfectly. They were strengthened however by the Ionic-pilasters inside and out, and the 10 feet cylinder arch of the verandah abutted against the larger one, and thus added to the stability. In the smaller arches of 17, 16, and 15 feet, the walls were purposely tried of pisé, brick, and mud, and a composition of both ; they were of various heights, but generally about 10 feet and $1\frac{1}{2}$ feet thick only, the upper foot, or foot and a half being built with brick in chunam. The pisé at Bangalore was found to be extremely hard, but situated as was my building close to water, I was enabled to build cheaper with brick, therefore that mode was relinquished.

The supporting iron hooks for chandeliers, &c. were fitted into blunt wedge-shaped blocks of wood, which were built into the solid brick and chunam binders as key stones, and perfectly surrounded with chunam and masonry.

Memorandum of the comparative weight of the Cylinder and Tiled Roofs.

(*From actual observation and experiment*).

Cylinders.

4 cylinders about 10 inches long—larger diameter 5 inches—smaller diameter $4\frac{1}{2}$—were found to cover $9\frac{3}{4}$ inches × $9\frac{3}{4}$ inches when properly placed.

Weight of the same ....7-lbs.

Now adding ....5 -bls.

For the weight of chunam between the cylinders and for the plastering on the top and bottom of the four cylinders, then the total weight for a space, $9\frac{3}{4}$ inches by $9\frac{3}{4}$ inches ....$12\frac{3}{4}$-lbs.

(The chunam is overrated).

The tiles were picked and the lightest as well as the best that could be procured, while no selection was made for the cylinders. The flat tiles were not taken into calculation as both roofs require an equal number, unless two and three coatings of these be given to the arched roof, in which case as tiles are much increased in weight by rain, while the cylinder roof is not so effected, the ultimate strains will be even then much alike. The timber, nails, &c. of the tiled roof are all in *excess*, and a cylinder roof once properly laid presents much less resistance to the wind, and will seldom or never require repair.

Tiles.

For a corresponding space of $9\frac{3}{4}$ inches × $9\frac{3}{4}$ inches (according to the ordinary mode of laying tiles at Bangalore)—the following tiles and parts of tiles were found to cover it. These portions carefully cut off and weighed gave the following result :—

2 whole tiles....................	$= 2$	
2 half tiles (longitudinally)............	$= 1$	
2 portions ($\frac{3}{8}$ of a tile each)........	$= \frac{3}{4}$	
2 portions ($\frac{3}{4}$ of a tile each)........	$= 1\frac{1}{2}$	
1 portion $\frac{5}{8}$ of a tile	$= \frac{5}{8}$	$\Bigg\}= \frac{7}{8}$
3 do. each $\frac{1}{16}$ of do.	$= \frac{3}{16}$	
2 do. each $\frac{1}{32}$	$= \frac{2}{32}$	

Total equivalent to tiles $6\frac{1}{8}$ the actual weight of all these was found to be 11-lbs. *without* chunam.

N. B.—As $6\frac{1}{8}$ tiles cover $9\frac{3}{4}$ inches × $9\frac{3}{4}$ or 95·0625 square inches which is nearly $\frac{2}{3}$ of a square foot about 10 tiles to the square foot is a fair allowance.

Neilgherries, *December* 28, 1837.

IV.—*Result of Astronomical Observations made at the Madras Observatory—Motion of the Solar System in Space.—By* T. G. Taylor, *Esq. H. E. I. C. Astronomer.*

In a former volume of this Journal,* among other results derived from the Astronomical Observations made at the Madras Observatory, is given a comparison of the places of 3003 stars, as observed in the years 1834 and 1835, with the places assigned by Piazzi from observations at Palermo in the year 1800 : it appeared from this comparison, that, after a due allowance had been made for the apparent change of place of the fixed stars, by reason of the regression of the equinoctial point, still there was a residual quantity to be accounted for, which was there termed "proper motion"—and that this quantity varied with the situation of the group of stars which formed the subject of consideration. It appeared, however, that since the object in view had reference to very minute portions of time and space, and required a set of observations, not only refined in quality, but almost unlimited in quantity, the above catalogue of 3003 stars was totally inadequate to determine the amount, or to trace the law of the motion in question. With

* No. 12, p. 53.

a view of attaining the necessary degree of accuracy, a catalogue of 2066 stars has since been observed, and the observations of a former catalogue of 2881 stars, have likewise been brought to bear upon the same subject; whereby I am now enabled to encounter the enquiry with something like appropriate means. To render this subject more clear to the general reader, it may be as well here to notice, that the term "proper motion" has long since been employed by astronomers to designate the effect resulting from an actual change in the situation of the stars in space. I have adopted the term "*true*" proper motion to represent that species of motion which *obviously* from its magnitude pertains to motion in the star itself; and have applied the term "*apparent*," to proper motions which would be exhibited from a change of place of the solar system. It necessarily happens, however, that, in consequence of the errors incidental to observers and instruments, many stars will appear to have a true proper motion, which really have none, and the contrary: hence, to enable us to avoid as many as possible of the true proper motions, it becomes necessary to lay down some limits, without which the errors of observation do not reach; thus, for the Madras and Palermo results, I have supposed the limit of error for A. R. to be $0.52s.$* for each; and for the declination, the limits of $4''$ for the former, and $4{,}5''$ for the latter: or, the error of observation *may* give rise to an error in the proper motion, for the year 1832, for instance, compared with 1800 to the amount

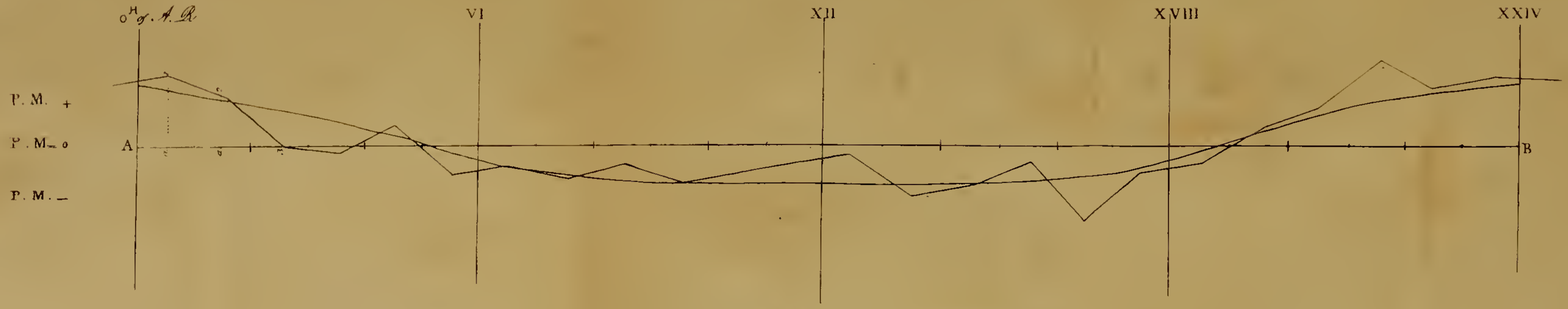
$$\frac{\overset{s}{,52} + \overset{s}{,52}}{32} = \overset{s}{,0325} \text{ for the right ascension,}$$

$$\frac{4'' + 4''.5}{32} = 0{,}266'' \text{ for the declination:}$$

hence we are safe in assuming, that all the stars of the Madras catalogue for 1832, which, on comparison with Piazzi's catalogue for 1800, exhibit a proper motion exceeding the above limits, are *bonâ fide* true proper motion stars; thus, in the three catalogues to which allusion is made above (containing about 7600 stars), there are 309 stars, or 1 in 25, which exhibit a *true* proper motion in A. R.; and 388 stars, or 1 in 20, which exhibit *true* proper motion in declination. Amongst these, we find that the + proper motions occur as often as those of opposite tendency, and indifferently at one part of the heavens as well as at another: hence, taking the sum of the true proper motions of a

* This being the extreme difference I have yet met with between any two determinations of the place of the same star.

Annual Proper Motion in A R.



Annual Proper Motion in Declination

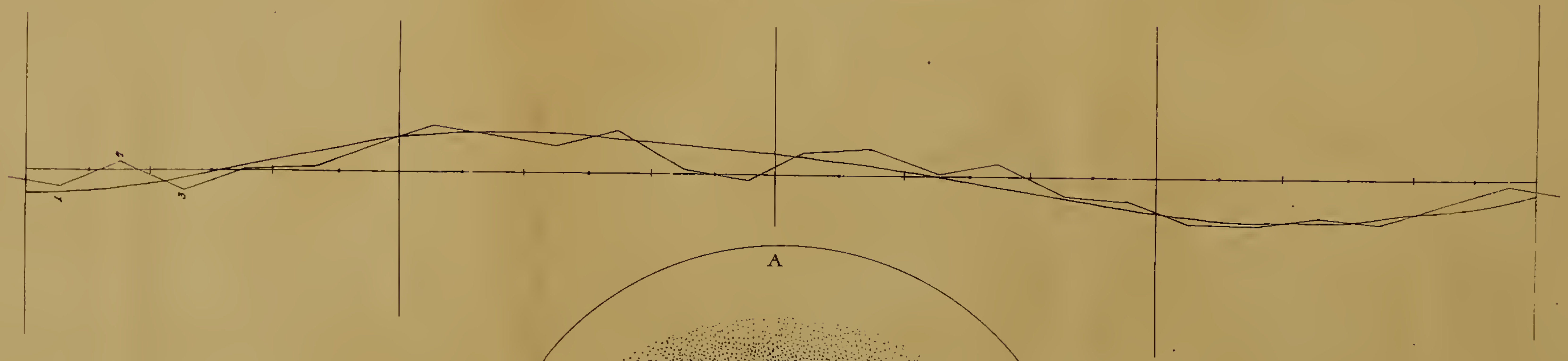
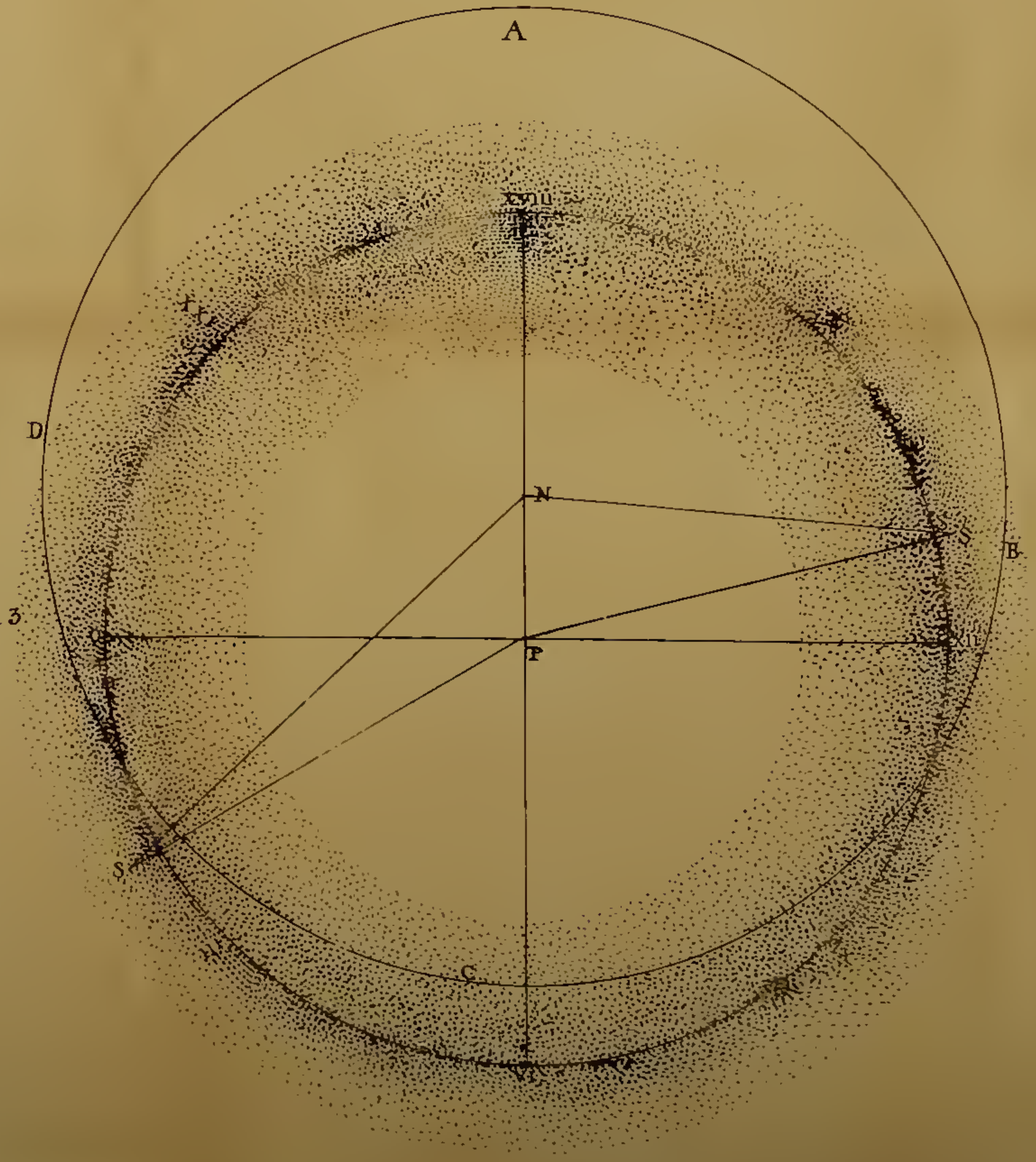


Fig. 3



group of stars at any part of the heavens (paying attention to the signs) should = 0; but, in case there should be a preponderance in favour of + or — in any one or more groups, we still should expect that these groups taken in order, would exhibit no particular tendency: not so, however, with *apparent* proper motion, here we must meet with system; we shall find + and — maxima, and others of intermediate tendency; thus, if the point N. figure 1, represent the point to which the solar system be supposed to move; all the stars situated in the neighbourhood of this point and that at 180° distance from it, will appear undisturbed—here the apparent proper motion = 0; whereas those situated in the great circle A B C to which these points form the poles, will be disturbed with the maximum effect; or rather, will exhibit larger apparent proper motions than others not so situated.*

In the table which now follows, containing the names of all the observed proper motions *after the above ascertained true proper motion stars have been excluded*, I have arranged the stars in the order of A. R.; each group containing the stars situated within the hour; and, with reference to the declination, it will, I find, be very near the truth to suppose the whole to be situated in a circle of 15° of north declination or 75° of N. P. D. With this understanding we will now examine the following table of proper motion in A. R.

* We are here necessarily compelled to suppose that each group of stars is situated at the same average distance from the sun.

ANNUAL PROPER MOTIONS OF THE FIXED STARS IN A. R.

A. R.	Vol. II. for 1832—2881 stars. P.M. stars.	Vol. II. No. and sum of + and — P. M.	Vol. II. Mean $\frac{20}{t}$ (—,0063) *	Vol. III. for 1835—300 stars. P.M. stars.	Vol. III. No. and sum of + and — P. M.	Vol. III. Mean $\frac{20}{t}$ (—,0057)	Vol. IV. for 1836—2066 stars. P. M. stars.	Vol. IV. No. and sum of + and — P. M.	Vol. IV. Mean $\frac{20}{t}$ (—,0056)	General Mean P.M.
H.		s.	s.		s.	s.		s.	s.	s.
0	7	90 = +1,152 7 = — ,041	+,0051	7	60 = +0,912 11 = — ,077	+,0061	1	114 = +1,385 8 = — ,026	+,0053	+,0054
I	4	87 = +1,085 12 = — ,077	+,0039	8	87 = +1,081 5 = — ,109	+,0038	3	63 = +0,897 3 = — ,025	+,0076	+,0047
II	6	91 = +1,260 9 = — ,049	+,0058	7	61 = +0,661 37 = — ,318	—,0022	1	51 = +0,678 5 = — ,032	+,0059	+,0027
III	2	93 = +1,154 10 = — ,065	+,0043	4	69 = +0,701 28 = — ,177	—,0003	0	45 = +0,579 8 = — ,04[illegible]	+,0044	+,0025
IV	6	126 = +1,608 7 = — ,037	+,0055	5	95 = +0,928 26 = — ,175	+,0005	3	44 = +0,682 12 = — ,091	+,0050	+,0036
V	5	129 = +1,313 12 = — ,082	+,0025	2	116 = +1,009 28 = — ,201	—,0002	2	63 = +0,745 7 = — ,045	+,0044	+,0017
VI	3	104 = +0,979 8 = — ,039	+,0021	9	122 = +1,185 32 = — ,240	—,0004	3	56 = +0,784 6 = — ,027	+,0066	+,0019
VII	2	90 = +0,761 12 = — ,065	+,0005	7	123 = +1,154 23 = — ,166	+,0011	3	54 = +0,663 8 = — ,086	+,0037	+,0015
VIII	2	77 = +0,748 16 = — ,104	+,00 7	3	79 = +0,[illegible]18 31 = — ,280	+,0001	2	57 = +0,695 6 = — ,042	+,0048	+,0019
IX	4	83 = +0,677 10 = — ,072	+,0013	6	73 = +0,709 30 = — ,189	—,0007	1	54 = +0,651 9 = —0,051	+,0041	+,0012
X	1	74 = +0,811 15 = — ,107	+,0016	7	84 = +0,902 29 = — ,276	—,0001	2	36 = +0,552 4 = — ,022	+,0067	+,0016

XI	3	66 = +0,674 8 = − ,089	+,0016	7	97 = +1,128 41 = − ,348	,0000	1	42 = +0,531 6 = − ,021	+,0050	+,0019
XII	4	72 = + ,620 14 = − ,108	−,0003	9	111 = +1,.33 19 = − ,198	+,0023	1	45 = +0,635 5 = − ,030	+,0063	+,0023
XIII	6	67 = + ,532 21 = − ,183	−,0023	2	105 = +1,086 32 = − ,244	+,0004	6	68 = +0,730 7 = − ,070	+,0033	+,0003
XIV	2	69 = + ,653 18 = − ,124	−,0002	4	98 = +0,969 33 = − ,195	+,0002	2	47 = +0,480 6 = − ,032	+,0028	+,0006
XV	3	80 = + ,747 9 = − ,043	+,0016	4	82 = +0,846 18 = − ,146	−,0013	1	52 = +0,520 5 = − ,062	+,0024	+,0016
XVI	4	72 = + ,609 16 = − ,109	−,0006	0	85 = +0,721 48 = − ,358	−,0030	0	55 = +0,549 8 = − ,039	+,0025	+,0010
XVII	4	84 = + ,772 17 = − ,069	+,0007	3	82 = +0,754 39 = − ,280	−,0018	2	104 = +1,272 13 = − ,098	+,0044	+,0010
XVIII	4	92 = + ,883 12 = − ,057	+,0017	5	81 = +0,718 22 = − ,185	+,0005	4	82 = +0,926 12 = − ,091	+,0033	+,0015
XIX	6	114 = +1,192 12 = − ,062	+,0027	4	97 = +1,005 24 = − ,186	+,0011	1	142 = +1,654 16 = − ,109	+,0042	+,0028
XX	7	100 = +1,134 17 = − ,104	+,0025	10	97 = +1,150 16 = − ,117	+,0034	4	193 = +2,292 18 = − ,122	+,0047	+,0038
XXI	3	98 = +1,205 13 = − ,057	+,0041	5	96 = +1,227 12 = − ,104	+,0047	22	144 = +1,873 19 = − ,117	+,0052	+,0048
XXII	4	104 = +1,274 10 = − ,039	+,0045	13	89 = +1,047 11 = − ,049	+,0041	4	72 = +0,910 6 = − ,025	+,0057	+,0047
XXIII	2	97 = +1,162 8 = − ,039	+,0044	9	94 = +1,259 13 = − ,101	+,0051	4	57 = +0,799 7 = − ,029	+,0064	+,0053

* The equinoctial point assumed by Piazzi was the same as that determined by Maskelyne; whereas the Madras catalogue reckons from a point 0,20*s*, in advance of this—hence the correction.

Notwithstanding the want of agreement of these several columns, on inspecting that containing the "general mean," we find something more nearly approaching to regularity, than should exist, were these numbers the effect of chance + or — true proper motion only; we find, with but one exception, that all the quantities are affected with the sign +, and we find in the neighbourhood of 0 hours, that it arrives at a maximum. Now the only circumstance which offers to account for this determination to the sign +, is a wrong assumption of the general precession in longitude; for, on reference to figure 3, where P represents the pole, and S. S. S. the circle around which our catalogue of stars is supposed to be congregated, we find, on dividing this circle into hours III, VI, &c. and drawing the line N. P., that all the stars situated to the left of this line, viz. between XVIII and VI hours, will, by a motion of the solar system towards N, have their right ascensions increased,* whereas those situated on the right, in the remaining 12 hours, will be diminished by the like amount; or, in other words, *the mean of the 24 results in the column "general mean," is free from the effect of any motion which may exist in the solar system;* if then, with reference to the formula for the precession in right ascension, (Precess. A. R. = $.46.021'' + 20.043''\ sin\ a\ tan.\ \delta$), and the position of the stars constituting each group, we compute the change of precession, due to a change of 1″ for instance, in the general precession in longitude, we obtain as follows:

Error of the column "Mean P. M. in A. R." corresponding to an error of 1″ in the general precession in longitude.

Right Ascension.	Error in Time.	Right Ascension.	Error in Time.
h. m. h. m.	s	h. m. & h. m.	s.
0. 30 & XI. 30 =	,063	XII. 30 — XXIII. 30	.060
I. 30 — X. 30 =	,066	XIII. 30 — XXII. 30	.058
II. 30 — IX. 30 =	,068	XIV. 30 — XXI. 30	.055
III. 30 — VIII.30 =	,070	XV. 30 — XX. 30	.053
IV. 30 — VII. 30 =	,071	XVI. 30 — XIX. 30	.052
V. 30 — VI. 30 =	,072	XVII.30 — XVIII. 30	.051

Here we immediately perceive, that applying the corrections due to an alteration of 0,04″ in the general precession in longitude will re-

* An advance towards the point N. necessarily increases the angle between it and any star S. in proportion to the *sine* of the arc N.S.—*i. e.* the star appears to move from S. to S., producing an alteration in the A. R. and in the N. P. D.

duce the mean of the numbers in the column " General mean P. M." (which now = 0024*s*.) to 0: if, in addition to this, we convert these measures into space, and then multiply each by the constant 845* to convert them into arc, we get as follows:

A. R. of group.		Reduced apparent annual P. M. in A. R. in arc.	A. R. of group.		Reduced apparent annual P. M. in A. R. in arc.
h.	*m.*	"	*h.*	*m.*	"
0.	30	+ 0,0368	XII.	30	— 0,0024
I.	30	+ ,0266	XIII.	30	— ,0254
II.	30	,0000	XIV.	30	— ,0203
III.	30	— ,0026	XV.	30	— ,0077
IV.	30	+ ,0101	XVI.	30	— ,0393
V.	30	— ,0139	XVII.	30	— ,0140
VI.	30	— ,0114	XVIII.	30	— ,0076
VII.	30	— ,0173	XIX.	30	+ ,0089
VIII.	30	— ,0101	XX.	30	+ ,0203
IX.	30	— ,0190	XXI.	30	+ ,0444
X.	30	— ,0127	XXII.	30	+ ,0304
XI.	30	— ,0076	XXIII.	30	+ ,0368

The above table I have entitled "Apparent P. M.," because it exhibits, as apparent P. M. should do, two neutral points, and one of +, and another of — maximum. Thus we find neutral points at 5*h*. and 19*h*.; and one of + maximum at 0*h*. and one of — maximum, not so distinctly marked, between 9*h*. 30*m*. and 16*h*. 30*m*. We will now leave the consideration of this table for the present, and examine the results for declination.

* If δ, δ', δ'', &c. represent the declination of the several stars in each group, then the reduction into arc is effected by multiplying by $\frac{\cos\delta + \cos\delta' + \cos\delta'' + \&c.}{n}$ which in this case being very nearly constant for each group, the constant, 845 may safely be employed.

ANNUAL PROPER MOTION OF THE FIXED STARS IN DECLINATION.

A. R.	Vol. II. for 1832—2881 sta[r]s.			Vol. III. for 1834—3003 stars.			Vol. IV. for 1836—2066 stars.		
	P.M. stars.	No. and sum of + and — P. M.	Mean.	P.M. stars.	No. and sum of + and — P. M.	Mean.	P.M. stars.	No. and sum of + and — P. M.	Mean.
H.		s.	s.		s.	s.		s.	s.
0	6	32 = + 2,10 67 = — 6,30	—,0424	5	29 = + 0,99 43 = — 3,73	—,0331	1	43 = + 2,03 80 = — 6,19	—,0338
I	7	41 = + 2,11 52 = — 5,41	—,0355	2	48 = + 2,28 60 = — 5,37	—,0286	2	30 = + 1,69 38 = — 2,96	—,0187
II	9	20 = + 0,95 74 = — 7,42	—,0688	7	37 = + 2,51 61 = — 5,97	—,0353	2	29 = + 1,76 30 = — 2,64	—,0149
III	3	27 = + 1,47 72 = — 6,39	—,0497	7	41 = + 1,90 62 = — 5,03	—,0304	3	20 = + 1,19 30 = — 2,55	—,0272
IV	9	32 = + 1,76 97 = —10,23	—,0657	5	51 = + 3,19 70 = — 6,36	—,0262	2	28 = + 1,70 27 = — 2,18	—,0087
V	9	38 = + 1,95 88 = — 9,04	—,0563	3	53 = + 3,96 74 = — 6,99	—,0239	4	38 = + 1,96 30 = — 2,00	—,0007
VI	8	29 = + 2,37 76 = — 6,14	—,0359	10	72 = + 4,56 79 = — 7,61	—,0202	1	28 = + 2,31 38 = — 3,22	—,0138
VII	2	32 = + 2,25 69 = — 6,41	—,0412	5	59 = + 2,96 89 = — 7,49	—,0306	1	29 = + 2,08 33 = — 3,25	—,0189
VIII	3	22 = + 1,31 67 = — 5,86	—,0511	2	30 = + 1,70 76 = — 6,31	—,0435	2	25 = + 1,12 40 = — 2,97	—,0284
IX	6	16 = + 1,32 58 = — 5,29	—,0536	3	31 = + 1,36 75 = — 5,55	—,0395	1	23 = + 1,18 37 = — 2,20	—,0170
X	5	20 = + 1,13 62 = — 6,60	—,0667	2	39 = + 1,55 79 = — 8,19	—,0563	2	11 = + 0,65 28 = — 2,40	—,0494

XI	5	23 = + 0,74	--,0568	6	28 = + 1,45	—,0599	1	6 = + 0,31	—,0821
		55 = — 5,25			92 = — 8,64			36 = — 3,76	
XII	5	22 = + 0,96	—,0565	3	51 = + 3,47	—,0338	2	10 — + 0,39	—,0814
		60 = — 5,59			87 = — 8,14			48 = — 4,46	
XIII	7	18 = + 0,95	—,0681	2	46 = + 2,57	—,0359	6	24 = + 1,31	—,0389
		68 = — 6,81			90 = — 7,45			52 = — 4,27	
XIV	13	21 = + 1,48	—,0574	5	41 = + 1,91	—,0475	2	10 = + 0,42	—,0642
		57 = — 5,96			90 = — 8.13			43 = — 3,82	
XV	18	23 = + 1,28	—,0559	3	31 = + 2,36	—,0380	1	16 = + 0,47	—,0640
		70 = — 6,48			72 = — 6,27			41 = — 4,12	
XVI	9	24 = + 1,81	—,0645	6	38 = + 1,94	—,0637	1	18 = + 0,84	—,0446
		73 = — 8,07			95 = —10,41			44 = — 3,61	
XVII	15	21 = + 1,32	—,0435	10	32 = + 1,25	—'0650	6	27 — + 0,92	—,0616
		60 = — 4,84			76 = — 8,27			90 = — 8,13	
XVIII	19	22 = + 1,30	—,0593	4	31 — + 1,73	—,0625	1	15 = + 0,86	—,0710
		64 = — 6,40			76 = — 8,42			80 = — 7,61	
XIX	19	29 = + 1,30	—,0593	4	33 = + 1,90	—,0558	8	32 = + 1,28	—,0662
		82 = — 7,88			80 = — 8,20			119 = —11,28	
XX	6	40 = + 2,55	—,0535	5	43 = + 3,03	—,0476	4	52 = + 2,85	—,0572
		78 = — 8,86			85 = — 9,12			158 = —14,87	
XXI	12	26 = + 1,73	—,0586	2	33 = + 1,50	—,0564	3	53 = + 2,76	—,0503
		75 = — 7,65			78 = — 7,76			130 — —11,97	
XXII	9	27 = + 1,65	—,0605	4	45 = + 2,43	—0,354	4	29 = + 1,50	—.0339
		84 = — 8,36			67 = — 5,85			51 = — 4,21	
XXIII	9	27 = + 1,77	—,0454	3	43 = + 2,59	—0,265	4	24 = + 1,41	—,0348
		72 = — 6,25			70 = — 5,58			40 = — 3,64	

On examining the above table, we notice that the sign *minus* invariably prevails, which leads us at once to enquire if any correction for a wrong assumption of l, or l', the latitudes of Madras or Palermo, are necessary; and how far the use of an incorrect table of refraction may affect the question; added to which we have already found that a correction of + 0,04″ is necessary to the general precession in longitude which has been employed; rendering necessary, to each group in the above table, the correction ,015 cos a, or the correction altogether $= \frac{d.\,l + d.\,l' + d.\,r + d.\,r'}{t}$ +, 015 cos a, which put $= \frac{S}{t}$ +, 015 cos a: now the value of $\frac{S}{t}$ depending upon t, the number of years since 1800, will necessarily be larger for the catalogue of vol. II. (for 1832), than for those of vols. III. or IV.; whereas the remaining part of the correction varying with a, the right ascension of the group, will be constant for each catalogue at the same hour, but will vary to the same extent + as —; hence, the mean of the 24 results for each catalogue, exhibits (independent of any proper motion which may exist) the values of $\frac{S}{t}$;--thus, on taking the means, we get

corrected mean proper motion in declination = —, 0544 + $\frac{S}{32.5}$

— — — — = —, 0417 + $\frac{S}{35}$

— — — — = —, 0406 + $\frac{S}{37}$

whence $S = 3.''61$.

Considering the general effect of the worst tables of refraction yet published, upon a group of stars, such as is met with in each hour of A. R., the error in the Palermo results or $d\,r$, cannot err beyond half a second of space; whereas in the Madras results, in which the stars are evenly distributed at either side of the zenith, the uncertainty does not amount to one-tenth of a second. With regard to the latitude of Palermo, it may be wrong, for we have no evidence to shew its accuracy or inaccuracy; whereas the latitude of Madras from recent observations should be diminished 1″; we have altogether as follows, $S = 3.''61 = d\,r - 1'',0 \pm 0,5 \pm, 0 \therefore d\,r.$ is between 4,″1 *and* 5,″1

Now an error of above 4″ in the latitude of Palermo, were it only out of respect to its late distinguished Astronomer, must not be admitted upon slight grounds; we will therefore subtract the mean of each catalogue from each of its constituents' values, and then combine the results according to their respective weights; thus, putting s for the correction which may now remain due to render them just.

A. R.		General P. M. in Declination.	Cord. Gen. P. M. in Declination.
h.	*m.*	No. 1.	No. 2.
		″	″
0	30 *s*	+ ,0079 × ,891 *x*	*s* — ,0071
I.	30	+ ,0172 × ,923	+ ,0038
II.	30	+ ,0032 + ,793	— ,0083
III.	30	+ ,0099 × ,608	+ ,0009
IV.	30	+ ,0072 × ,382	+ ,0015
V.	30	+ ,0146 × ,130	+ ,0127
VI.	30	+ ,0216 — ,130	+ ,0235
VII.	30	+ ,0139 — ,382	+ ,0196
VIII.	30	+ ,0037 — ,608	+ ,0127
IX.	30	+ ,0073 — ,793	+ ,0188
X.	30	— ,0121 — ,923	+ ,0013
XI.	30	— ,0171 — ,991	— ,0023
XII.	30	— ,0037 — ,991	+ ,0111
XIII.	30	— ,0009 — ,923	+ ,0126
XIV.	30	— ,0111 — ,793	+ ,0004
XV.	30	— ,0043 — ,608	+ ,0047
XVI.	30	— ,0142 — ,382	— ,0085
XVII.	30	— ,0134 — ,130	— ,0115
XVIII.	30	— ,0190 + ,130	— ,0211
XIX.	30	— ,0160 + ,382	— ,0217
XX.	30	— ,0090 + ,608	— ,0180
XXI.	30	— ,0094 + ,793	— ,0209
XXII.	30	+ ,0019 + ,923	— ,0115
XXIII.	30	+ ,0108 + ,991	— ,0041

On assuming for *x* the value, ″0150 which immediately results from the change, 0.04″ in the general precession in longitude.

In which *s* if the above error of 4″ in the Palermo latitude be admitted = +, 595.

Inspecting No. 1, we find a pretty regular determination to + and —, which cannot possibly arise from accident; we notice, that any small correction for error of precession, such as found at page 312, since it interferes in no respect with the *general tendency* of the numbers in the table No. 1, may be applied, or not, at pleasure ; to be consistent, however, it will be proper to apply this correction, and adopt the results contained in No. 2.

If we now divide the line A B fig. 2 into 24 equal parts, to represent hours of A. R. and making use of any convenient scale, set off opposite to 0*h.* 30*m.* 1*h.* 30*m.* and the perpendiculars *a* 1, *a* 2 &c. corresponding to the values given in the table at page 312, and perform the same fig. 3, for the above table ; we get two series of lines 1, 2, 3, and 1, 2, 3, exhibiting, in the first instance, the observed variation of the A. R. of a star supposed to be situated at 0*h.* 30*m.*

1*h.* 30*m*,. &c. of right ascension, and at a distance of 75° from the North Pole ; and, in the second case, exhibiting the *nature of the variations* of the same star in declination, but *not its extent.* If we now with freedom draw a curved line through each of the above series, conforming as nearly with the several points as is consistent with a curve line, and then measure the ordinates we obtain—

Interpolated Annual Proper Motion.

A. R.		P. M. in A. R.	P. M. in Declin.	A. R.		P. M. in A. R.	P. M. in Declin.
h.	*m.*	"	"	*h.*	*m.*	"	"
0	30	+ ,0312	− ,0100	XII	30	− ,0210	+ ,0080
I	30	+ ,0250	− ,0070	XIII	30	− ,0200	+ ,0040
II	30	+ ,0180	− ,0020	XIV	30	− ,0190	− ,0015
III	30	+ ,0135	+ ,0040	XV	30	− ,0180	− ,0065
IV	30	+ ,0060	+ ,0100	XVI	30	− ,0158	− ,0110
V	30	− ,0035	+ ,0145	XVII	30	− ,0115	− ,0145
VI	30	− ,0110	+ ,0180	XVIII	30	− ,0045	− ,0175
VII	30	− ,0160	+ ,0190	XIX	30	+ ,0067	− ,0195
VIII	30	− ,0175	+ ,0180	XX	30	+ ,0163	− ,0195
IX	30	− ,0190	+ ,0170	XXI	30	+ ,0240	− ,0175
X	30	− ,0200	+ ,0145	XXII	30	+ ,0300	− ,0160
XI	30	− ,0210	+ ,0115	XXIII	30	+ ,0320	− ,0140

These numbers, it will readily be admitted, have been arrived at in a legitimate way, and they are proper motions ; and, since it will not for a moment be contended that they represent " true" or actual proper motions of the stars themselves, we will enquire how far the supposition of a motion of the solar system in space will account for these several values. For this purpose, on the centre P. (fig. 2), with the chord of 75° , describe a circle, which divide into 24 equal parts corresponding to the several points at which we have determined the proper motions; with reference to the P. M. in A. R., we find that it arrives at 0, at about V and XIX hours ; whereas, to represent the effect of motion of the solar system, these points should be separated by 12 hours only : let us then assume VI and XVIII to represent the zero points in

A. R., and draw the line VI—XVIII. If we assume the point N, to which the motion of the solar system is directed, to be situated any where in the direction P XVIII, it will at once represent the *nature* of the above tables; for, the effect of advancing to any point N, being to increase the are N S to N S′, in which S S′= M *sine* N S; its effect between 18*h.* and 6*h.* is to increase the right ascension; whereas between 6*h.* and 18*h.* it should diminish it to the same extent: if we now assume some position for N, and compute the value of M from the proper motion in A. R. at 14*h.* for instance; and then compute the same from the declination for 6*h.* and 18*h.*; we can, by the method of trial and error, discover the position of N which best suits all the observations; from a few computations in this way, the distance of N from P comes out between 23° and 24°, and the value $m = +,''063$, and *s.* which is immediately deduced $= +,''0527$. But the point at 18*h.* A. R. and 23° or 24° N.P.D.is the pole of the Ecliptic !!! and the value for *s* just formed agrees almost to identity with that formed at page 397, hence we come at once to the important and in some respects unexpected conclusion—*that the solar system is in motion; and that the motion is directed towards the North Pole of the Ecliptic.* Could we form any approximate idea of the average distance of the fixed stars, we should be tempted at once to compute in what time our system would be able to make the acquaintance of her still distant neighbours; but, in default of this information, it will not be uninteresting to know how the case stands. Supposing the fixed stars to be situated at such distance that the earth's orbit subtends an angle of 1″ only—and modern observations fixes it within this limit—then the motion above indicated, amounts to 11,970,000 miles in a year; from which we readily discover, that the solar system, *under any circumstance of distance,* at its present rate of movement, will require 31,176,977 years to reach the nearest fixed stars.

V.—*Report on the Goomsur, Duspullah, and Boad Zemindaries.*—*By Lieut.* S. C. Macpherson, *Assistant Surveyor General.*

Contents.—The Report connected with the accompanying plan of routes and sketches of country in the Goomsur, Duspullah, and Boad zemindaries, is divided into two parts.

The first relates, 1st to the general configuration and superficial characters, and 2d to the geology, of the country to which the survey extends; 3d to the measurement and detailed description of the routes traversed; to routes compiled from native information; and to memoranda connected with the march of troops.

The second part refers, 1st to the civil geography and statistics of the districts visited; and 2d to the institutions, the manners and the religion, the system of social and individual life, of the portion of the Khond race, south of the Mahanuddy; with sketches of the history of the relations of its principal sections to the zemindaries of Boad and Goomsur.

To this division of the report, is appended an imperfect notice of the Sourah race,—a widely extended and apparently aboriginal people of the great mountain chain and farther hill region of Orissa, which replaces the Khond tribes on the south, and is like them undescribed.

The skeleton map prefixed, indicates the civil subdivisions of the country traversed. The unvisited tracts are locally subdivided on the authority of carefully collated native statements.

The western route from Gottingia to Sohnpore, and thence up the valley of the Tale-nuddee, is from the survey of Lieut. Campbell. The civil divisions which appear in that quarter are mine.

A list of native authorities is appended.

SECTION I.

Of the Configuration and Superficial Characters of the Country in the Plan.

Extent.—The portion of country represented in the plan, is included between the lines of 19° 55 and 20° 50 N. lat. and in the 85th degree of E. long.

Districts in Boad proper
1 Koofsumghur
2 Harbunga
3 Ramgur
4 Keradughur
5 Kachuchune
6 Moodjcund
7 Byra Dus
8 The Fort of Poorna Cuttack and Village
Khond Districts in Boad
1 Kotrikia
2 Atcombo the 4 Eastern Combos
3 Atcombo the 4 Western Combos or Ruttabarri
4 Borogeotia
5 Bulscopa
6 Dommosinghi
7 Oogdoor
8 Bagjeer
9 Baramullick
10 Kolabagh
11 Bondoghur
12 Punchora or Barabat Dis
Khond Districts formerly attached to Boad now to Goomsur
1 Chekapaud
2 Hodzoghur
3 Tentilighur
Khond District attached to Duspullah
1 Nowsaghur

Skeleton Plan
of the
BOAD ZEMINDARY
with part of
GOOMSUR &c.

Configuration.—It embraces a section of the central ridge of the line of eastern ghauts, with a portion of its ramifications, its included and connected valleys, aud dependent hill groups.

Of this region, the northern and western parts are comprised in the hydrographical valley of the Mahanuddy, which bounds it on the north, dividing the mountain chain. Its southern limit forms the crest of the valley of Kimedy; its eastern and south-eastern portions belong to that of Goomsur.

The direction of the spinal ridge is a few degrees to the east of north.

It forms an expanded table-land from twenty-five to thirty-five miles in breadth, with an average elevation of 2000 feet. Its western slope, and its north eastern angle, are imperfectly surveyed. Its surface is traversed by frequent ridges generally parallel to its great façades, their crests ranging in altitude from 300 to 1200 feet. The observed portions of its ridges are elevated, and on the eastern side occasionally sustained by lines of bold summits.

The ridge of partition, which divides the waters of the valley of the Mahanuddy, from those which flow to Kimedy and to Goomsur, crosses the plateau in an irregularly waved line, a few minutes to the south of the 20th parallel.

From the western limit of the table-land, the Côl runs above the sources of the Tale-nuddee, towards the Nagpore frontier. On the east, it becomes identified with the bounding ridge of the plateau for twenty miles of its course northward from 20° 2′—when it descends, over Pussara and Gattigooda, to rise soon after to an equal elevation in the mountain group of Ambozara.

From the western portion of the ridge of hydrographical partition, three widely branched valleys conduct the Salki, the Baug-nuddee and the Tale-nuddee northward to the Mahanuddee between Boad and Sohnpore. Within the same space flow the Gohera, of shorter course, and, a little to the eastward of Boad, the Bulwat.

From the eastern portion of the great Côl, a similar series of channels, those of Pussara, Gattigooda, Kookloobah, &c. bear the drainage of its southern slope to Goomsur.

The Bortungia river, rising at Calingia, is to be traced along the northern declivity of the parting ridge into Duspullah, whence it flows N. E. to the great stream. The remaining part of the northern slope of the eastern section of the dividing ridge, with the southern acclivity of its western portion, remain to be observed.

A remarkable depression, resolvable into four secondary valleys of easy inclination, crosses the dividing crest at Gattigooda; and traversing with a direction between N. by W. and N. N. W. the spinal ridge of the ghauts, connects the main valleys of Goomsur and Boad.

The first and second valleys of this chain form the opposite slopes of the ridge of partition. The latter of these declining to the bed of the Bortungia at Boropall, the third acclivity rises from its opposite bank to Adnygarra, ten miles within the ravine which penetrates the main ridge. The remaining portion of this great mountain chasm is drained by two rivulets, whose waters are barely parted, and which flow by Poorna, Cuttack and Teen-Combo to the Mahanuddee.

The sides of the great plateau are sustained both by counterforts, and by lines of inferior ridges, which are at times concentrically disposed.

The characteristic form of the single hills of Goomsur is conical, or pyramidal, the angles of the pyramid being prolonged so as to produce the cruciform aspect, eminently distinctive of the detached summits of the tracts below the ghauts.

The continuous ridges are wedge-shaped, now hog-backed, now having slightly flattened summits, and supported by buttresses which generally spring from half their height, transecting the opposite valleys.

The chief valleys of this region are wide and open, bearing broadly based cones of detrition, and drained by deeply channelled streams.

The mountain sides, with a large proportion of their summits, their lateral ramifications, and dependent ridges, are clothed in a dense unbroken forest which encircles like a zone from 15 to 25 miles in breadth the bases of the chain.

Within this expanse, chiefly covered by saul forest (the *Chloroxylon Dupádah*), occur open or lightly-wooded tracts of considerable extent and remarkable beauty, and well cultivated along the courses of the larger streams. These great sylvan glades are finely embellished with mango trees of great size, solitary and in groves, with the tamarind, the bamboo, the bur, and the peepul tree,—and the banian on a gigantic scale. The sorringi or googlut, from which exudes the resin so largely used in worship, the phesi which affords the well known wood-oil, the gombari a valuable timber-tree, whose bark is employed in tanning, the mahdi or *Palma maxima,* and the broad leaved doottia abound in the marshy woodlands. The splendid pulas, the *Gloriosa superba,* with *Mimosas, Euphorbias, Cassias,* and a vast variety of *Gramineæ,* every where enrich the coppices which fringe the forest. Lilies and reeds cover the pools; and clim-

bers, save in the deep saul forest, where no underwoods grow, every where festoon the loftiest trees, and entangle the whole wild.

Vegetable Products.—The following are the most important vegetable products of this tract. The names first given are Oorigan. Their Hindoostanee synonymes are marked H. Those cultivated on the table-land as will afterwards be noticed have T prefixed.

Varieties of rice sown in June, reaped in November.

Sorts.—1st, Chinnamally.
2d, Krustorokolo.
3d, Puttra.
4th, Joguttrobulbo.
5th, Omoortoomondo.
6th, Chingri.

Other Grains.—Mundia or H. Raggi—the staple food of the country.
T. Kundaloo or H. Tuar.
H. Cooltee, Dolichos Biflorus.
Beeree or H. Mash, Phaseolus radiatus.
T. Kangoo H. Makka or Indian corn.
T. H. Sursoo or Mustard, Sinapis Dichotoma.
T. Joorunga or H. Lobe, a bean.
Mooggo or H. Moonga, Phaseolus Mungo.

Oils.— T. Kulso or H. Erindi, Ricinus communis.
Russi or H. Til, Sesamum Orientale.
T. H. Ram Til.
H. Kurrinj.

Vegetables.—T. Tumbae or H. Sumbi.
T. Jotta or H. Sem.
Saroo or H. Kuchoo, or Yam.
Mossia or H. Doola Kunda, a similar root.
Kondomoollo.
T. Kowria Saggo, Ambari Ki Bajee.
T. Byngan, Brinjal.
Pyaz, onion.
Russina H. Zussun, garlick.
T. Boetaloo H. Shukhur Kuddo, pumpkin.
T. Rukkaroo H. Hurya Kuddo. Green do.
T. Jonni H. Toorei, of cucumber kind.
T. Potlakaia H. Chilchunda, do.
Kakoori H. Kumkeeri, melon.
Bhendi.

T. Lonka Mircho, *Capsicum annuum.*
H. Karela *Cleome Pentaphylla.*

Jungle Fruits.—T. Kakoora.
T. Kendo.
T. Koito and H. Kuweet.
T. Mossia.
T. Korwa—in Telloogoo Pilleeyelloo Kunda.
T. Konkora, *Cucumas.*
T. Bello, H. Bell.

Other plants of economical value—Coppa or Cotton.
Dhooan, tobacco.
Panno, betel only in the Brahmin villages.
Akkoo—Sugar-cane.
Jennup H. Sunn-*Crotolarea Juncea.*

Fruits.—T. Ambo, mango.
T. Ponso, jack-fruit.
T. Kojala, plaintain.
Noodia, cocoa-nut, rarely seen.
Jammi, guava.
Limbo, lime.
T. Tobba.
Talo, palmira.
Dalimo, pomegranate.

General Geological Characters.—As much of the geological relations and mineral constitution of the region comprehended in the plan, as may assist the conception of its superficial characters, may be here appropriately stated.

The great gneiss deposit, which constitutes the basis of the whole explored portion of the coast of Coromandel between Ganjam and Vizagapatam, appears exclusively as the fundamental rock of these tracts.

At an average height of from 200 to 400 feet above the general level of the country, whether below the ghauts, or on the plateau, the gneiss passes by apparent gradations into sand-stone, or is suddenly replaced by that rock.

The structure, constitution, and external aspects of this section of the gneiss formation are infinitely diversified. Its prevailing forms and superficial features are these.

Throughout extensive tracts, it is a hard granitic rock of close granular texture, composed of smoky quartz, with minute crystals of dull

red felspar, and occasional scales of mica, obscurely stratified, and wasting in low flat domes.

In other districts, the character of the rock is highly crystalline. Felspar, in greatly increased proportion, appears in large sized prisms, and hornblende is occasionally present. The strata affect the bedded form, and disintegrate in prismatic and cuboidal masses, picturesquely piled.

The gneiss, less frequently, receives, in comparatively limited tracts, a new character from the addition of garnets in great quantity. By these it is pervaded now as a close granular quartzose rock, the garnet sparks running in the dim lines of stratification; now, as a finely laminar, though never schistose mass, the strata endlessly bent and contorted. In the rock under this form, every variety of structure, of texture, and of constitution prevails by turns. Hornstone, felspar, mica, hornblende, and dark garnets appear mingled in every proportion, and individually developed in great beauty.

The rock thus constituted generally decomposes by exfoliation in low undulating surfaces.

The gneiss finally assumes throughout extensive districts a strongly marked porphyritic character, its dark gray surface being strikingly variegated by prisms of felspar from two to six inches in length which become white on exposure.

This rock is every where traversed by quartz-veins, both transversely and in the direction of the laminæ.

It is in some tracts also largely penetrated by granitic veins, on every scale; in other districts these are entirely wanting.

There occur likewise throughout this deposit occasional dykes of greenstone or of hornblende rock, whose course the nature of the surface renders it extremely difficult to trace. The bearing of the observed beds, was nearly N. N. E.

The general direction of the gneiss strata is N. easterly. They are inclined at every possible angle.

The sandstone which replaces the gneiss is generlly constituted of quartz and felspar, with mica in small quantity interposed in the lines of stratification.

In texture it is both close and granular, and open and crystalline, and of every degree of induration. In colour it is generally light gray or of a yellowish or reddish white.

Its strata appear of every dimension; and in the low country conformable to the gneiss. Their dip in these tracts is in some degree

regular, ranging generally between 60° and 80° above the ghauts, the strata are inclined at every possible angle, and towards every point of the compass.

The outline of the conical and pyramidal hills, and hog-backed ridges, which result from the association of these rocks, is, generally, broken with slight asperities, rarely continuously rugged. The naked rock is seldom exposed, save in the sharpest summits of the hills, in occasional bald domes, and in the water courses.

The difference between the angles of superficial inclination assumed by these rocks in disintegration is sufficiently striking.

The lower portion of a hill, formed of gneiss, rises at an angle between 15° and 25°; its upper portion, composed of sandstone, is inclined at about 40°.

The soil produced by these rocks necessarily bears every variety of character. It is in many tracts light and sandy, but from the proportion of felspar contained in both formations, and the large admixture of vegetable matter it is often also rich and loamy.

The strictly geological connections and mineral details of these formations will be investigated in another section of this report.

It may in the mean time be observed of the sand stone that certain phenomena of apparent gradual transition into gneiss; its conformability to this rock, and the entire absence of conglomerates in these tracts, tend to rank it among the primary rocks; while on the other hand the existence of a tract of sandstone apparently secondary over the granitic gneiss at the eastern extremity of the valley near Ganjam; the character of the rocks of Cuttack; and the apparent connection of this deposit with that containing argillaceous iron stone beyond the Mahanuddy, would assign it a place as an old red sand stone. I had no opportunity of observing the passage of veins from either side.

Two lines of Route surveyed.—In the chain of valleys which skirts and transects the spinal ridge of the ghauts, runs the easterly route surveyed from Gullery to Boad.

The second line of survey rises to the plateau from near Koradycottah, at the northern extremity of the great depression. It proceeds to the western verge of the table-land in Ruttabarri, returning by a south-easterly course to Courmingia on its opposite brink.

A brief notice of the country traversed in each of these lines, will permit reference to the remaining points of superficial topography appropriate to this report.

The Eastern line of Route from Gullery in Goomsur to Boad on the Mahanuddy.—The upper portion of the northern acclivity of the valley of Goomsur is drained, as has been stated, by a series of nearly parallel streams, the chief of which flow from Pussara and Gattigooda to the west; and by Kookloobah and Jagnatpersaud to the eastward of the mountain mass of Ambozara.

The eastern route first ascends the valley of Gattigooda.

The features of this example of an alpine slope of Goomsur, channelled by its seasonal torrent vividly record the power, and express the characteristic action of the elements on the superficial materials of these tracts.

Its bounding ridges above Gullery, broken and ill-defined, become soon after sustained, continuous and compact; converging insensibly in a course of 16 miles to Gattigooda.

A wild, picturesque rivulet there quits the dividing ridge of the great valleys, winding through a succession of narrow gorges and rugged defiles, down a deep and tortuous dell, ever crossed and embarrassed by hill spurs, given out confusedly from either side.

The stream was at the commencement of the summer heats, a thread of water which vanished wherever the forest canopy was intermitted. Its channel, which had afforded scope to a powerful mountain river, was, now, a deeply worn precipitous chasm, with mural sides and rocky pavement; now the slope of a fierce rapid, laid with large round stones; and now scooped into a series of broad hollow basins.

As the straitened glen by degrees dilated to a valley in which the receding ridges, and less crowded buttresses gave room for a freer passage the stream-bed now lay over clayey holms, now wound deeply sunk in the crumbling detritus of the hill sides, and finally, as the confining ridges began to break over the plain of Goomsur, expanded to a smooth bed of shingle and white sand.

Over all lay the unbroken gloom of the primeval forest, now composed of timber-trees of majestic growth; springing from the moist stream banks, now of dense tracts of bamboo jungle, now of various lighter forestry with rich leafy underwood.

Hydrographical Valley of the Mahanuddy.—The rise of a few hundred feet from Gattigooda conducts into the hydrographical valley of the Mahanuddy.

From the summit of the Côl, a brief slope of four miles, leads to the Bortungia at Chokapaud, just descended from the plateau. On the other hand a minute feeder leads due-south to the same stream at Boropall,

at the point where it escapes eastward from the base of the hills to the main river.

Chokapaud stands in an open cultivated expanse of oblong figure, a couple of miles in diameter and parted from the line of ghauts by a low ridge and intervening valley.

The direct descending slope from the ridge of partition to Boropall by Bonee, is less inclined than that of Gattigooda, less rugged, and occasionally clear from forest, and well cultivated.

Beyond Boropall, the great depression enters the main ridge of the ghauts.

To Adnygurra, it is a mountain chasm of bold and picturesque features, twelve miles in length, and from one to two in breadth.

It is but slightly inclined. The bounding ridges rise from 500 to 1200 feet in height, generally abrupt, occasionally craggy.

The channel of the stream lies in a precipitous and rarely accessible ravine.

The saul forest is continuous and undiversified.

Baringhi stands on a fertile slope at the entrance of the pass. The rich fields of Raneegunze spread in a *cul de sac* in its centre.

Adnygurra stands where an open valley leading from the heights of Bengrikia and Borogootza meets the great pass.

A confused ravine, at one point straitened to a narrow gorge, leads down the fourth and last of the chain of dividing slopes by Poorna Cuttack into the alluvial plain of the Mahanuddy.

The alluvial plain of the Mahanuddy.—A level expanse varying from five to seven miles in breadth, sweeps between the southern bases of the hills and the right bank of the river—to the westward, with an uninterrupted course; upon the east, broken by transecting ridges which soon conceal the direction of the stream.

Upon the northern bank, the lofty and picturesque summits of Sohnpore, Sumbhulpore and Autmullick form a rudely marked semi-circular amphitheatre, whose extremities 30 miles apart, rest upon the river as on a chord-line.

This irregular arch includes a series of low transverse ranges, of the undulating hill-group, which comprehends the clay ironstone deposit of Autmullick and Rhadacole.

A lofty mountain mass, which appears to be the prolongation of the great central ridge of the ghauts, forms its eastern extremity.

In the alluvial plain of Boad, the forest decreases in density from the

hills to the river. The timber trees are of lower growth than in the mountain valleys, and mingled with thorny underwood.

Considerable tracts of this expanse are cultivated with wet and dry grains. The soil is a varied assortment of alluvial clays and gravels.

The bed of the Mahanuddy at Boad is from a mile to a mile and a furlong in breadth.

In March the stream lay under the left bank two furlongs wide, now running with a clear and rapid current over white gravel, now forming chains of deep still pools. It was fordable but at one point four feet deep in the centre, and rendered difficult by quicksands. Below Boad the river is divided by the long wooded island of Murjacole. Its contracted channel is here laid bare by the swift stream, exposing a bed of large round backed variegated masses of porphyritic gneiss.

The banks are of clay, 30 or 40 feet in height, every where precipitous, and fringed with single trees and masses of dark wood.

From Boad I performed a rapid circuit of 80 miles through the Autmullick and Rhadacole zemindaries beyond the Mahanuddy;—to view a region rarely penetrated; to ascertain at what point the Khond people is in this quarter replaced by the Cole race; and to observe the tract from which the iron of commerce of this part of India is almost exclusively derived.

Low parallel ranges of undulating hills of sandstone and shale, among which rose insulated and picturesque summits apparently of gneiss, gave a new character to the physiognomy of the country. The forest, chiefly of saul, seemed less rich and various than that of Goomsur; the open woodland tracts as frequent, clearer, and less embellished. The drainage of the country did not flow south towards the Boad reach of the Mahanuddy, but westward to join its northern bend between Sohnpore and Sumbhulpore. The iron, as will elsewhere be noticed, is yielded by extensive beds of argillaceous ironstone, the ore being identical in character with that of the district which supplies the great Carron foundery in Scotland.

The chief products of this forest besides wax and dammer, are two species of lac collected in great quantity. One species is derived from the lowha-pulsa-tree. It exudes over the young leaf shoots in the rainy season, when they are gathered, and the resin extracted by bruising.

From the koosum-tree is derived a more valuable lac, said to be principally employed in Calcutta in the process of sharpening or polishing steel. It is likewise formed in the rains on the young sprigs, which are collected and sold with the resin unseparated.

The koosum-tree is held to be approachable only by the jungle Khonds after propitiating by sacrifice its guardian demon.

Another variety of lac is said to be procured from a climber, in whose stem an insect pierces holes from which it distils in the wet season. The chirwall (*Morinda citrifolia*) whose root affords the well known red dye is also gathered, and the oil of the phesi-wood is collected in large quantities.

Second Line of Route from near Koradycottah over the table-land to Courmingia on its Eastern verge.—The second line of route traced in the plan, rises to the plateau from the dividing chain of valleys, in the bed of a feeder of the Somersoothum rivulet, near Koradycottah.

The features of this mountain ravine have as much of wild grandeur, of savage beauty, and of picturesque gloom, as is often to be contemplated in nature.

A series of dark, precipitous, bare-walled chasms linking together a succession of close and deeply shaded hollows or *culs de sac*, penetrate rather than ascend for three miles the forest laden mountain side; while there impend on either hand, at great elevations, the dark cones and wooded slopes which compose the flank of the great plateau.

A short, steep ascent finally leads to the summit of the table-land in Borogootza.

Few contrasts can be imagined more abrupt and striking than that between the savage and solitary glen whose line of cavern-like chasms, and sunless dells is threaded in the ascent of the pass, and the bright and smiling landscape which opens on the view upon crowning the plateau. It is as if a scene of Claude were inlaid in a picture of Salvator. An open valley, a mile and a half in length, and bounded on either hand by soft lines of richly wooded hills, forms a scene, in its proportions, its colouring, and picturesque details exquisitely composed.

The surface of the vale is a gently waved park-like expanse of rich corn land, embellished with mango, saul, and the greater palm-trees, solitary, and in groups, amongst which narrow winding lines of vivid verdure mark the courses of the streamlets from the abutments and recesses of the hills to where they unite in a quickly flowing vein of water which escapes in front.

Three large Khond villages, shadowed by ancient groves, and embowered in fruit trees of every leaf, lie close under the covert of the hills, massively wooded in their deeper foldings and ravines, lightly

feathered on their exposed brows ; a fourth is placed where they break over the summit of the pass.

Where a slight change in the level of the ground denotes the scarcely defined southern limit of the valley, rises a hill of light and graceful outline, its base darkly wooded, its summit plumed with spiry saul trees, dividing like a half transparent screen, the nearer scene from a more extended expanse of woodland and cornfields, mixed with shadowy hamlets, and successive ranges of tinted summits, which stretch in long prospective beyond.

The central and western divisions of the portion of the plateau comprised in the plan, are occupied by the immediate valleys of the Salki, and of its tributary, which, fed from Bulscoopa and Borogootza, escapes over the ghauts at Dommosinghi. Rivulets of brief course, fall over the eastern verge of the tablet from Calingia, Moondagaum, and the northern and southern angles of Borogootza.

The hills in its southern tracts are clothed in verdure ; now bare, now lightly and irregularly wooded. The valleys,—a series of broad basins transected by hill spurs, are clear and open, bearing mango and tamarind, and palm-trees, disposed singly and in clumps, while stunted saul wood fill the ravines and deeper recesses of the hills.

The ridges of the northern portion of the plateau, with their narrow vales, are covered with dense and continuous saul forest. The hill spurs, and detached summits, are never bare, and the broad valleys have a more woodland character.

Over the whole of this section of the plateau, with the exception of the bare hill summits, and a few stony tracts on its southern verge, spreads a deep stratum of rich mould, either cultivated or capable of cultivation.

The cultivated land falls under three divisions ; 1st, the irrigated portion ; 2d, the dry land of the valleys ; and 3d, the land of the hill slopes.

Irrigation is effected exclusively by the interception of the torrents and perennial springs along the bases of the hill ranges, to be diffused over terraced expanses, extended as far as the nature of the soil, the volume of water, and the arrangement of levels permit.

Every rivulet, thus terraced to its fountain head, is generally bordered for miles of its course, by flights of corn-bearing steppes laboriously fashioned in its banks, and often ranged at the height of from 50 to 80 feet above its channel.

In the upper portions of many valleys, the whole drainage is absorbed by the broad rice flats, the natural water-courses being for a space obliterated.

The land of the valleys which lies beyond the reach of irrigation thus conducted, bears a large proportion of the most productive dry crops of Orissa, distinguished in the preceding list of vegetable products by the letter T. Tracts of considerable extent, and of great importance to the cultivator, are cleared on the forest clad slopes, for the production principally of turmeric and mustard, but also of castor oil, Indian-corn, and the Joorunga bean.

The turmeric of these hill-farms is the great source of Khond wealth. It thrives best in light red, stony soil, on which no water rests. Before sowing, the ground is ploughed three or four times, and well manured with cow-dung and rotten straw. It is sown in drills, and carefully hoed and weeded for two years, when it is mature. It is replaced by a crop of mustard ; again succeeded by turmeric. The *greater* kundaloo or tuar must not be omitted as an apparently exclusive grain of the hill valleys and table-land.

Between a fourth and a fifth part of the whole of this portion of the plateau is under cultivation, and upon few tracts are beauty and wealth of surface more richly lavished.

The route from Borogootza runs west by south, through a densely wooded country to Sooroodoocoopa, placed in a hill basin over the Hattigoontza ghaut, on the western brink of the table-land.

Returning for a short distance to the eastward, it proceeds southward across the richly embellished valley of Bulscoopa. From Bulscoopa it passes through strait, forest clad valleys to Moondagaum in Tenteliaghur, whence the drainage flows eastward to Chokapaud. It thence crosses, to the southward, the ridge which divides these waters from those of the valley of the Salki.

Passing through the district of Hodzoghoro, drained by that stream, the route traverses the ravine leading to Calingia, from which the Bortungia river springs.

The basin-shaped tablet of Calingia, is divided from the lower valley of Courmingia, by a low ridge, which connects the raised eastern edge of the great table-land with the hills of the eastern slope of the valley of the Salki.

Over the western shoulder of this ridge, the route descends into the broad and open valley of Courmingia, from whence the ghaut which bears its name, and the pass of Durgapersaud lead to the low country of Goomsur.

VI—*Horary Meteorological Observations made at the Equinoxes and Solstices, agreeably with the suggestions of Sir* John Herschel.

1*st.—At the Madras Observatory.—By* T. G. Taylor, Esq. *H. E. I. C. Astronomer.*

1838.	Time.	Barom.	Ther.	Wind.	Remarks.	
Mar. 20	6 P.M.	29.966	82.8	S. E.	Gentle wind—clear.	
	7	29.974	80.5	S. E.	do.	do.
	8	29.996	80.0	S. E.	do.	do.
	9	30.012	78.9	S. E.	do.	do.
	10	30.030	77.8	——	Calm	do.
	11	30.028	76.7	S. E.	Light breeze	do.
	12	30.008	75.9	——	Calm	do.
	1 A.M.	30.006	76.0	——	do.	do.
	2	30.004	75.8	——	do.	do.
	3	29.984	75.6	——	do.	do.
	4	29.964	74.4	S. W.	Gentle wind	do.
	5	29.990	73.8	W.	do.	do.
	6	29.986	73.3	S. W.	do.	do.
	7	30.012	74.0	S. W.	do.	do.
	8	30.038	76.0	S. W.	do.	do.
	9	30.068	78.9	S.	do.	flying clouds.
	10	30.078	82.0	S.	do.	clear.
	11	30.066	83.1	S.	do.	do.
21	12	30.030	84.5	S. E.	do.	do.
	1 P.M.	30.012	85.1	S. E.	do.	do.
	2	29.982	86.0	S. E. by S.	do.	do.
	3	29.958	86.0	S. E. by E.	do.	do.
	4	29.954	85.8	S. E. by E.	do.	do.
	5	29.954	85.6	S. E.	do.	do.
	6	29.960	82.1	S. E.	do.	do.
	7	29.984	80.5	S. E.	do.	do.
	8	30.004	80.0	S. E.	do.	do.
	9	30.020	79.8	S. E.	do.	do.
	10	30.038	79.1	S. E.	do.	do.
	11	30.036	78.7	S. E.	do.	do.
	12	30.020	78.2	S. E.	do.	do.
	1 A.M.	30.008	77.8	S. W.	do.	do.
	2	29.994	76.4	S. W.	do.	do.
	3	29.974	75.6	S. W.	do.	do.
	4	29.972	75.0	S. W.	do.	do.
	5	29.978	74.8	W. by S. W.	do.	do.
	6	30.004	74.2	——	Calm	do.

2d.—At the Trevandrum Observatory.—By J. CALDECOTT, ESQ.

	Hour.	Wrench's bar. corrected for temp. 32 & for capillty.	Robinson's barometer, corrected for temp. 32°	Standard thermometer.	Dep. of wet bulb thermometer.	Dew point.	Direction of wind.	Velocity of wind.	Solar radiation.	CLOUDS—ASPECT OF THE SKY AND REMARKS.
Mar. 21	6 A. M.	29.838	29.677	74.4	2.7	70.44	N. by E.	3	—	Zenith clear, horizon hazy—breeze cold.
	7	.863	.723	76.0	2.4	72.56	do.	1	2.35	do. do. do.
	8	.889	.786	79.5	4.6	72.97	N. N. E.	1	4.90	do. do. do.
	9	.893	.800	83.3	7.7	72.38	N. by W.	2	6.05	do. do. a gentle breeze.
	10	.897	.810	86.6	12.5	68.28	do.	3	10.15	Cirrus in N. W. hor. light cum. about E. hor. do.
	11	.876	.792	88.5	11.9	71.65	S. W.	6	5.32	Flying clouds in zenith, pleasant wind.
	Noon.	.863	.788	89.2	12.0	72.31	S. W. by S.	7	9.90	Cirrus in the east, do.
	1 P. M.	.843	.763	88.9	12.5	71.13	S. W.	7	10.60	do. do.
	2	.809	.733	88.5	11.8	71.82	S. W. by W.	5	11.25	Sky clear do.
	3	.784	.705	88.4	12.7	70.18	W.	5	5.50	do. do.
	4	.790	.723	87.5	12.9	68.72	S. W. by W.	4	7.25	do. do.
	5	.793	.727	86.0	9.7	72.29	W. S. W.	4	2.50	Flying clouds in the zenith, light cum. about horizon.
	6	.807	.732	84.5	9.4	71.04	do.	4	No obser-	Sky obscured with cum.—gentle breeze.
	7	.829	.748	83.2	8.1	71.63	S. W.	3		do. except zenith clear do. lightg. in north.
	8	.866	.783	82.9	7.2	72.71	—	0		Low cum. about horizon, clear towards zenith—calm.
	9	.890	.791	82.7	6.8	73.11	—	0		do. do. do.
	10	.900	.812	81.1	6.0	72.57	—	0		Heavy cum. rising all round towards zenith—calm.
	11	.908	.793	80.4	5.4	72.73	—	0		Masses of cum. about horizon, zenith clear do.
	Mid.	.901	.782	79.8	4.7	73.14	—	0		do. do. do.

22	1 A. M.	.884	.782	78.5	3.7	73.26	....	0	vations.	do. do. do.
	2	.864	.775	77.2	3.6	72.03	....	0		Detached cum. hanging about horizon
	3	.845	.750	76.5	2.9	72.34	....	0		do. do. do.
	4	.843	.755	75.3	2.2	72.13	N. E. by N.	1		do. do. gentle air.
	5	.853	.762	75.3	2.7	71.36	N. E. by E.	1		do. do. do.
	6	.863	.777	74.5	2.8	70.41	N. E. by N.	1		Clear sky do.
	7	.887	.797	76.0	2.9	71.81	....	0	1.20	do. calm.
	8	.903	.810	80.2	4.9	73.27	....	0	8.90	do. do.
	9	.915	.852	85.0	9.4	71.62	N. by W.	3	9.75	Light clouds in zenith, rem. clear, light wind.
	10	.909	.832	88.0	12.4	70.20	do.	4	11.80	Det. cum. about horizon do. do.
	11	.889	.820	88.9	14.0	68.51	N. N. W.	4	8.20	Clear sky do.
	Noon.	.858	.783	90.2	13.4	71.20	N. by W.	6	10.60	do. mod. and pleasant wind.
	1 P. M.	.828	.762	90.2	13.3	71.37	do.	8	11.20	do. do.
	2	.791	.738	89.6	13.3	70.62	W.	4	10.30	do. do.
	3	.772	.714	89.2	12.9	70.82	do.	4	6.60	do. thunder at $3\frac{1}{2}''$ fr. N. W. do.
	4	.770	.721	89.0	12.4	71.42	W. N. W.	4	5.70	do. do. light breeze.
	5	.798	.729	87.2	11.1	71.42	do.	3	0.00	Overcast do.
	6	.797	.775	85.2	8.9	72.53	W.	3		do. do.

No rain.

REMARKS.—Since the observations made with Wrench's barometer in December last, the instrument has been deranged by air having insinuated itself into the tube, and on tapping it on the 13th of January last, a large bubble suddenly rose into the vacant part above the mercury, and depressed it between two and three-tenths—this was got rid of again by inversion, but the instrument was no longer found to give the same indications as before. A comparison made a few days previous to this change with a new barometer of the syphon kind by ROBINSON (then just received from England) showed a difference of inch 0,305 (when both were corrected for temperature, and the allowance made for capillarity in Wrench's instrument) Wrench in excess, and after the change the mean of 75 comparisons gave (the same corrections having been applied) Wrench in excess, inch 0.108, the quantity therefore, if these comparisons can be relied on, to be subtracted from the former observations, or added to the present in order to render them comparative with each other, will be inch 0.197. The indications of both instruments were taken on this occasion, and are given above.

In the December observations the correction for capillarity + .075 was inadvertently omitted, the heights given (in the last No. of the Journal) should therefore be increased by this quantity.

The other instruments are the same as before described, but to save the trouble of reference, it may be convenient to repeat the account of them here.

The thermometer is a standard by Troughton—the other used for the wet bulb has been carefully compared with the standard, and the difference allowed for in the column of depressions. The dew points are calculated from Professor Apjohn's formula.

The direction of the wind is shown by an anemoscope, but the velocity (in miles per hour) is given by estimation merely.

The solar radiation is measured by Sir J. HERSCHEL'S instrument, the actinometer (for an account of which see 3d report of the British Association).

The time is the true mean time at the Observatory. Latitude 8° 30' 35" north—longitude 5*h*. 8*m*. 0*s*. east.

The observations are made in a bungalow expressly erected for the purpose, and in which every disturbing cause has been carefully guarded against—the cistern of the barometer is 177 and three-quarter feet above the sea (by levelling) and distant from it about two miles.

3d.—*At Hoonsoor, in Mysore,—By* Wm. Gilchrist, Esq. *of the Madras Medical Establishment.*

Day of month.	Hour.	Barometer reduced to 32° Fahrenheit.	Dry thermometer.	Wet thermometer.	Winds.	Clouds.	Remarks.
Mar. 21	6 A.M.	27.504	67.5	63.5	Calm.	Hem. cloudless, but rather hazy.	Heavy dew—fog in valleys.
	7	.470	68.25	65.	do.	do. do. do.	
	8	.504	72.5	67.75	do.	do. do. do.	
	9	.513	77.	67.	do.	do. do. do.	
	10	.515	80.5	64.	E. by N. occasional puffs.	do. do. do.	
	11	.506	84.	60.	E. by N.—breeze.	do. do. do. [hor.	
	12	.478	87.	61.	E. by S. do puffy.	do. do. haze increased round	
	1 P.M.	.436	87.5	60.75	E. by N. do. do.	do. do. do. as at 12.	
	2	.405	89.	60.5	E.N.E. do. do.	do. do. do.	
	3	.381	87.5	61.	do. do. do.	do. do. do.	
	4	.381	87.	57.75	do. do.	do. do. do.	
	5	.365	86.75	56.	do. do.	do. do. but rather hazy.	
	6	.397	82.	57.	Calm.	do. do. do.	
	7	.427	77.5	59.5	W.S.W—lt. breeze.	do. do. do.	
	8	.453	76.	69.	do. do.	do. do. do.	
	9	.480	74.	68.25	do. airs.	do. do. do.	
	10	.484	74.	69.	do. light breeze.	do. do. do.	
	11	.488	71.75	68.	do. do.	do. do. do.	
	12	.456	72.5	68.	do. airs.	do. do. do.	

22	1 A.M.	.459	75.	67.	Calm.	do. do. do.	
	2	.460	71.75	66.	do.	do. do. do.	
	3	.428	68.25	66.	S. W.—airs.	do. do. do.	
	4	.434	69.	66.	W. by S.—lt. breeze	Thick fog.	
	5	.433	69.	65.	do. do.	do.	
	6	.464	68.5	65.	do. do.	do.	Heavy dew.
	7	.493	70.	65.25	Calm.	do.	
	8	.504	72.5	66.25	W. by S.—occasional airs.	Thin cumuli—hazy.	The cum. move from E. by N.
	9	.509	76.	67.	do. do.	Cloudless do.	
	10	.524	79.5	67.5	Calm.	do. do.	
	11	.495	80.75	67.	do.	Zenith do.—a few detached cumuli S. and W. horizon.	
	12	.481	83.5	64.	do.	do. do. around do.	11¼ A.M.—length of shadow 1.75 inches, perpendicular 6 inches.
	1 P.M.	.436	86.25	61.5	N.E. by N.—breeze puffy.	do. do. do. do.	12.50' do. do. 1.77 do. do.
	2	.410	85.75	60.5	do. occasional puffs.	do. do. W. and S. hor.	
	3	.392	87.5	59.1	do. breeze.	do. do. do. do.	
	4	.378	86.	58.	do. do.	do. do. do. do.	
	5	.389	83.25	53.	Calm.	do. do. do. do.	
	6	.393	83.	58.	Easterly airs.	do. do.—W. and S. hor. cum-strati—hazy.	Distant lightning, S. horizon.

VII.—*Meteorological Register at Royacottah.—By Lieutenant* CAMPBELL, *Assistant Surveyor General.*

In the annexed register, the observations at the upper station were made in the hill fort, the elevation above the lower station being about 500 feet, as measured by a Wollaston's thermometer and barometer, and about 100 feet below the highest part of the rock on the eastern side.

The lower station is in the lower fort, distant about half a mile S. W. from the upper one.

The upper observations were registered by myself, but are not regular from want of leisure to attend to them. The lower observations were made by Mr. M'Mahon, head sub-assistant in the Salem and Baramhal survey.

The instruments used were carefully compared together and with the best thermometers procurable, and the observations corrected accordingly, and the wet thermometers have been compared with the Daniel's hygrometer in the manner explained in a former paper, No. 17, page 295.

The times of comparison were chosen with the intention of comparing two barometers, but the instruments ordered for the use of the survey not having been received, the intention has been frustrated.

Want of leisure has prevented the trigonometrical measurement of the situation of the two stations, but which will be completed as soon as the barometers are received.

The elevation of the upper station above the sea, by an imperfect barometer, is about 3,235, the mean pressure being 26,85 inches in the month of October.

The observations of Daniel's hygrometer have been made only at detached intervals, and generally only when the depression of the wet thermometer was considerable, as it was intended to try the effect of the elevation on the wet thermometer, and for want of a second instrument, compared observations could not be made.

In comparison with observations at the level of the sea, it does not appear, that the depression of the wet bulb thermometer increases with the altitude, although Daniel's experiments go to shew, that the *quantity* of the evaporation varies inversely with the pressure. It will be seen that the dew point is generally below the wet bulb, about 9-10th of the difference between the wet and dry thermometer. I hope to be able to have the observations at the upper station continued during my absence in the district, as also those at the lower station, which I hope the writer of the survey will be able to manage.

Meteorological Register, kept above on the Rock of Royacottah, for the month of October, 1837.

Days.	Thermometer. Sun-rise.	10 A. M.	2 P. M.	4 P. M.	Depression of wet ther. Sun-rise.	10 A. M.	2 P. M.	4 P. M.	Dew point. Sun-rise	10 A. M.	2 P. M.	4 P. M.	Minimum.	Rain.	Wind.	Remarks.
Oct. 1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
3	—	—	—	73	—	—	—	5	—	—	—	—	—	—	—	
4	69	71	73½	—	2	3	3½	—	65	66	68	—	69	0	W	Cloudy, cold.
5	69	—	76	75	—	—	5	5	65	—	66	—	69	0	W	Bright, warm.
6	71	74	—	76	3	4	—	7	65½	67½	—	—	71	0	W	Clear, warm.
7	71	—	—	77	3	—	—	9	—	—	62	—	71	—	—	
8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
10	—	76	78	77½	—	3	9	—	—	68	62	—	—	—	—	
11	73	74	—	76	5	7	—	7	64½	63	—	—	—	—	—	
12	—	—	—	—	—	—	—	—	—	—	—	—	—	0	N	Temperate, pleasant.
13	73	—	—	—	5	—	—	—	—	—	—	—	73	—	—	
14	—	76	—	—	—	10	—	—	—	—	—	—	—	0	N E	Clear and pleasant.
15	71½	—	—	—	6½	—	—	—	61½	—	—	—	—	—	—	
16	—	—	—	78	—	—	—	11	—	—	—	—	—	—	—	
17	73	77	—	79	7	12	—	15½	—	56	—	—	—	0	S E	Dry, pleasant.
18	—	76	—	78	—	10	—	12	—	—	—	—	73	0	N	Cold and chilly, wind high.
19	70	—	77	76	10	—	15	12	—	—	53½	—	70	0	N E	Cold and fresh.
20	72	74	—	75	8	9	—	10	—	—	—	—	70	—	—	Overcast, dull, unpleasant.
21	71	75	—	75½	5	—	—	8½	—	—	—	—	71	—	—	Pleasant and cool.
22	71	75	—	77	4	6	—	8	—	—	—	—	70	—	—	Pleasant and bright.
23	—	75	78½	—	—	6	11½	—	—	—	—	—	70	show.	—	Pleasant and cool.
24	—	74	—	—	—	4	—	—	—	—	—	—	71	—	—	Cloudy, heavy and unpleasant.
25	70	72½	75	75	3	2½	6	6	—	67½	—	—	68	heavy	E	Rain all day and night.
26	71½	72½	—	73	2½	2½	--	4	67½	67½	—	—	70	—	E	Damp and mist, but cool and pleasant.
27	72	73	75	72	4	4	6	3	—	67	—	—	69	show.	N E	Cloudy, pleasant, rain 4 P. M.
	68.6	74.3	76.1	75.8	4.8	5.9	8.0	8.2					70.3			

Meteorological Register kept above on the Rock of Royacottah, for the month of November, 1837.

Days.	Thermometer.				Depres. of wet ther.				Dew point.				Minimum.	Rain.	Wind.	Remarks.
	Sun-rise.	10 A. M.	2 P. M.	4 P. M.	Sun-rise.	0 A. M.	2 P. M.	4 P. M.	Sun-rise.	10 A. M.	2 P. M.	4 P. M.				
28	69½	70	73	73	1½	½	3½	3	—	—	—	—	67½	Heavy	E	Heavy rain in night, heavy clouds.
29	69	71	71	72	2	2	2	3	—	66½	—	—	67	—	—	Cloudy, damp, heavy clouds, pleasant.
30	69	70	—	72	1	1	—	2	67	68	—	—	67	Heavy	E	Rain all night, day drizzling, damp, mild.
31	69	71	—	72	2	2½	—	4	—	—	—	—	68	—	N E	Fresh, clear, breezy and pleasant.
Nov	—	68	—	69½	—	1	—	1	—	—	67	—	66	Depths	N	Gale, very heavy rain, W. veered round [from N to S
2	—	69½	70	70	—	1	1½	1½	—	—	—	—	67	Heavy	—	Clear, damp.
3	—	69	—	—	—	1	—	—	—	—	—	—	66	Rain	—	Damp.
4	67½	69	69	68	1	1½	2½	1½	65½	—	64	—	66	—	N W	Clear, fresh and cold.
5	67	68	70	69	1	0½	1½	½	—	—	—	—	65	—	—	Wet, drizzling rain.
6	69	71	—	71	1	1	—	1	—	69	—	—	68	—	—	Cloudy, cool and pleasant.
7	70	71	72	—	1	1	1½	—	—	—	—	—	69	Rain	—	Misty, temperate.
8	69½	70	72	72	1	1½	2	2½	—	—	—	—	68	—	—	Day clear, morning damp and foggy.
9	69½	71	72½	72½	1	1	2½	3	—	—	—	—	67	—	—	Morning foggy, day clear.
10	68	71	73	73	1	2½	3	—	66	—	—	—	67	Rain	N W	Clear, cold, not damp.
11	71	—	74	72	2½	—	3½	3	68	—	68	—	67	Rain	—	Morning misty, day clear.
12	—	72	—	72	—	3	—	2½	—	—	—	—	67	—	—	Clear.
13	—	73	—	73	—	3	—	3½	—	—	—	—	68	—	—	Mist, damp, pleasant.
14	70	—	73	—	1½	—	2½	—	67	—	—	—	68	—	N E	Morning fog, day clear, and pleasant.
15	69	70½	—	—	3	2	—	—	65	—	—	—	66	—	—	Clear.
16	—	70½	—	72	—	3	—	4	—	64½	—	—	67	—	—	Day calm, dry and unpleasant.
17	—	71½	—	73	—	3	—	3½	—	—	—	—	68	Shower	—	Clear, pleasant.
18	—	71	—	74	—	4	—	3	—	—	—	—	67	—	—	Mornings foggy, days clear, pleasant, showers.
19	—	71½	—	—	—	2½	—	—	—	67	—	—	68	—	—	
20	67	—	—	—	—	—	—	—	66½	—	—	—	67	—	—	
21	—	71	—	—	—	2	—	—	—	—	—	—	67	—	—	Morning foggy.
22	68	—	—	—	1	—	—	—	—	—	—	—	67	Rain	—	Morning foggy, day clear.
23	66	69	—	—	½	2	—	—	64	—	—	—	65	Heavy	S E	Morning thick fog.
	68.7	70.3	71.8	71.6	1.4	1.5	2.4	2.5					67.0			

Meteorological Register kept at the top and bottom of the Rock of Royacottah for the month of December 1837.

Days.	Thermometer. Sun-rise. Above	Sun-rise. Below	10 A. M. Above	10 A. M. Below	2 P. M. Above	2 P. M. Below	4 P. M. Above	4 P. M. Below	Depression of wet thermometer. Sun-rise. Above	Sun-rise. Below	10 A. M. Above	10 A. M. Below	2 P. M. Above	2 P. M. Below	4 P. M. Above	4 P. M. Below	Dew point above. Sun-rise.	10 A. M.	2 P. M.	4 P. M.	Minimum.	Rain.	Wind.	Remarks.
24	65	—	68½	—	—	—	68½	75	2	—	3	—	—	—	4	6	61	—	—	—	62	,,	E	Clear—below thick fog, very cold—sun shining.
25	65	65½	69½	71	—	74½	70	74¾	2½	1½	4½	3	—	8½	5	7¾	60	—	—	—	63	,,	N E	Clear—cool above—warm below
26	63	63	—	71½	69½	77	—	77	1½	1½	—	4½	4	10	—	10	61	—	55½	—	63	,,	N E	Above clear—heavy fog below—day clear—warm below.
27	64	65	69	71	—	75½	72	75	1	1	6	6	—	11½	10	11	60½	58	—	52	64	,,	N	Morning fog above and below—day clear
28	63	64	66½	69½	69½	74½	69½	74	2	1	5½	6½	8½	8½	8	8½	59	55½	52½	53½	63	,,	E	Clear—mist blowing past above—very cold—warm below.
29	61½	61	67	70	—	74½	69	74	5½	¼	6	7	—	10	7½	8¾	50½	55½	—	55	60	,,	E	Clear and cold—day bright.
30	61½	63	68	71	—	76	71	75	5½	1	5	6	—	9	6	8	51½	58	—	59	61	,,	S E	Clear—strati in S.E. evening cumuli.
1 Dec	60	61	66	70	67	74	—	74	5½	0	6	7	5½	11	—	8	—	—	—	—	60	,,	S E	Clear—cirri strati in S. E.
2	63	61	66½	68	—	74	63	77	6	1	6	7	—	9½	5	12	—	50½	—	—	61	,,	N E	Cumuli strati in S.E. cold and chilly.
3	63	61	—	70	-	75	—	72	5½	1	—	5½	—	6	—	2	—	—	—	—	62	shr.	N E	Clear—cold and chilly.
4	65	61	67	69¼	—	73	—	72¾	3	0	3½	4¼	—	5	—	5¾	—	—	—	—	62	,,	E	Morning fine; clear and mild above, below chilly.
5	[illegible]	63	—	71	—	75	69	75	2½	0	—	6	—	8	4	6½	55	—	—	—	62	,,	N	Fresh and cold.
6	64	64	65½	70	—	74½	68	72	4	1	4	6	—	6½	6½	6½	—	—	—	—	61	,,	N E	Overcast—above very cold—below chilly.
7	62	63	64	69¾	—	73	—	71¾	4½	¼	4	5	—	7	—	6¾	—	—	—	—	60	,,	N E	Ditto.
8	62	64	68	70	70	75½	68½	76	4	1	5½	7	—	10½	8½	11½	—	—	—	—	60	,,	N	Cloudy, cold cirri.
9	—	65	68	73	70	76	69½	75	—	1	5	8	9	10	9½	10½	—	—	—	—	63	,,	N E	Morning cold—clear day—mild above—very warm below.
10	64½	63	67	73	70	77	70	76	7½	3	7	9	7	11	7½	11	49	—	52	—	63	,,	N	Clear and mild above—below warm.
11	65	64	68	73	70½	77	70	77¾	9½	6	11	12	10½	12½	10	13¾	—	44½	—	47	64	,,	N	Morning mild above—10 A. M. cold—warm below.
12	68½	65	70	74	—	78	73	77¼	10½	3	9	10	—	10	9	9¼	48	—	—	56	67	,,	N W	Very mild above—cold below—clear—evening overcast nimbi.
13	69	70	71½	72	74	77	73¼	76	3¼	1	5½	3	6	6	5½	6	62	—	—	62	67	,,	N	Morning clear—day overcast nimbi.

Meteorological Register kept at the top and bottom of the Rock of Royacottah for the month of December 1837.

Days.	Thermometer. sun rise Above	Thermometer. sun rise Below	Thermometer. 10 A M Above	Thermometer. 10 A M Below	Thermometer. 2 P M Above	Thermometer. 2 P M Below	Thermometer. 4 P M Above	Thermometer. 4 P M Below	Depression of wet thermometer. sun rise Above	Depression of wet thermometer. sun rise Below	Depression of wet thermometer. 10 A M Above	Depression of wet thermometer. 10 A M Below	Depression of wet thermometer. 2 P M Above	Depression of wet thermometer. 2 P M Below	Depression of wet thermometer. 4 P M Above	Depression of wet thermometer. 4 P M Below	Dew point above. Sun-rise.	Dew point above. 10 A. M.	Dew point above. 2 P. M.	Dew point above. 4 P. M.	Minium.	Rain.	Wind.	Remarks.
14	68	69	69	71	70	72¾	69	71	2	0	2	2	2	3¾	2	2	65	—	—	61½	67	shrs	S E	Morning cold misty—day overcast—rain at 2 P. M.
15	67	66	68	71	70½	73¾	70	75½	2	0	3	4	3	5¾	6	8	—	—	—	—	64	,,	S E	Above mist in morning mild—cold below.
16	67½	67	69½	74	72	79	71½	77	1½	0	2½	5	5	8¼	4½	7	63½	—	—	—	65	,,	S E	Above mist in morning—day cumuli.
17	69	68¾	70	74½	72	78½	—	79¼	3	0	3	4½	4	6	—	7¼	—	—	—	—	65	,,	N E	Clear and mild above—below damp and foggy —cumuli.
18	69	70	70	75	72	78	—	79	2	0	4	5	6	7	—	8	—	—	—	—	65	,,	S E	Above mist in morning—below clear and chilly.
19	67	69	70	73	—	77¼	71	77	2	¼	4	5	—	8¼	6	7½	63½	—	—	—	65	,,	N E	Above mist in morning—day cold.
20	66½	67	70	71¾	70½	76	—	76¼	2½	0	6	5¼	6½	8	—	7¼	—	—	—	—	63	,,	E	Morning overcast—above mild—below cold.
21	65	64	67	70	—	75	69	74¾	3	0	5	4	—	8	8	7¼	—	—	—	55	62	,,	E	Morning cold—day bright—cumuli.
22	65½	65	67½	71¾	69½	76	69	73	4½	1	6½	6¾	7½	9	7	6	—	56	—	—	62	,,	E	Morning cold—day overcast—nimbi.
23	65	67	67	69½	69½	75¾	70	74¾	7	4	5	4	5½	5¾	5	5¾	53½	58½	—	—	63	shrs	S E	Morning cold and overcast.
24	67	68	—	79	—	79¾	71	72	3	1	—	10	—	8¾	5	2	—	—	—	—	64	little	E	Above mist in morning—below cold—evening overcast cumuli.
25	68	68½	69	75	70½	74	70	74	2	½	3	6	4½	3½	4	4	—	—	—	—	64	do	E	Clear.
26	65	63	67½	69½	—	71½	—	71	3	0	4	3½	—	3½	—	4½	—	59½	—	—	63	shrs	S E	Above morning clear and mild—below heavy damp fog, day clear.
27	64	65	67	71¾	—	75½	70½	75	4	1	5	5¾	—	7½	8½	8	—	—	—	55½	61½	,,	S E	Morning fine—day clear.
28	65	66½	66½	70	71	76½	—	77	5	3	6½	6	8	9	—	10	—	—	56	—	62	,,	S E	Morning clear—day cold cirri.
29	66	69	68	72	71	75	70	76	3	3	5	5	8	8	8	10	59	—	57½	—	63½	,,	S E	Morning clear and day bright, light cirri—hazy mist passing the summit of rock.
30	64½	64	65½	69	68½	74	68	72	4½	2	5½	6¼	8½	9	10	9	—	—	—	48	61	,,	S E	Clear and mild above—below morning cold—day warm.
31	64	63	66	70	68	74	—	73½	6	3	7	8	11	13	—	11½	—	—	45½	—	62	,,	E	Morning cold—day below warm.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	,,	E	Clear and mild above—below morning cold day warm—cirri.
	65.0	65.0	67.8	71.5	64.5	75.4	69.7	74.8	3.9	1.2	5.0	6.2	6.5	8.2	6.6	7.9					63.2			

Note.—The Meteorological Observations made at Royacottah will, we hope, be *steadily* continued, particularly when the barometers which have been ordered for this station are supplied : we say *steadily* continued, for on referring to former attempts which have been made in India to establish a regular meteorological registry at any considerable elevation, we have not been so fortunate as to meet with one which is complete for any useful length of time. Our present information with regard to the constitution of the atmosphere has almost entirely been derived from the persevering assiduity of Humboldt and Roy :—from these we have learned the amount and law of the decrement of temperature and of the elasticity of the air on ascending to various heights in the atmosphere in its *mean* state; it would now be interesting from a few series of carefully made observations like the above, to discover in *extreme* cases how far these laws are transgressed. We are led to make these remarks, from having lately examined a meteorological journal (one of the imperfect ones) in which it appeared that at a considerable elevation, the fluctuations of the barometer in *extreme* cases greatly exceeded that observed in the plains below !—another journal contradicted this. With regard to the remark made by our correspondent—that, in proportion to the height above the level of the sea, the depression of the wet bulb thermometer observed at Royacottah is in defect, &c. although we are very willing to believe that he means right, nevertheless, he certainly, if we rightly understand him, appears to be wrong ; we shall therefore feel obliged for the data on which the comparison with the level of the sea is made.——Editor.

VIII.—SELECTIONS.

1.—*Memoir on the Origin, Progress, and Present State of the Surveys in India.—By Captain* Thomas Best Jervis, *Bombay Engineers,* F. G. S. *and* A. S.

A summary and popular account of the origin, progress, and actual state of the surveys carrying on under the auspices of the Honourable East India Company, has doubtless been considered a desideratum by many who are interested in geographical discovery, more especially as the results have recently been brought before the public, and have naturally suggested some inquiries as to the methods pursued, and the degree of confidence to be placed in what has been thus submitted to its criticism. It would indeed be a dereliction on the part of any who should enter upon the task of explaining these matters, were he to omit to notice at the outset how singularly disinterested and munificent a part this great and influential public body has taken in undertakings which, whatever may be urged of other schemes, originated in no sordid or selfish policy, and may undeniably be said to have more of a national character than any other to which their attention has been called: nay, further, which apart from the immediate exigencies of the state, have been pre-eminently calculated to speak to the steady, straight-forward, enlightened principles that mark both those that direct, and those that administer the executive government of our Eastern empire.

The earliest records of the India House bear abundant testimony to the fact of the constant and lively interest taken by the Directors in the improvement of the charts and navigation of the Indian seas. Repeated instructions were sent out year after year to the local governments, to cause individual talent to be put in requisition by every species of encouragement:—log-books, astronomical and written observations to be procured and sent home, and where the originals could not be obtained, tracings were directed to be accurately made, and forwarded for compilation and publication. The patronage so wisely extended by our most gracious and excellent sovereign, George the Third, to the improvement of geographical knowledge, was thus in spirit and in letter transferred to his people in every quarter of the globe, and the steady support which other navigators and travellers experienced at the hands of royalty, were equally evinced by those who watched over the destinies of India.

Although some valuable scattered notices both of the geography and the trigonometrical operations have appeared from time to time in the Transactions of the Royal Society and the Asiatic Society of Calcutta, as well as in Major Rennell's Memoirs, and voyages and travels of a still earlier date, very little, notwithstanding, of what has been recently accomplished has, as yet, been described in any publication generally accessible to the community, in a simple and connected form, intelligible to readers of all classes. In endeavouring to supply this deficiency, it were much to be wished that such an epitome had been ready prepared to hand by those who have successively superintended these operations, and were, therefore, most competent to do justice both to the subject itself, and to the many meritorious individuals who have been engaged in its execution, the memorials of whose unobtrusive industry and talent would, but for such notice, be entirely forgotten and lost. In default of such account, the following particulars will be received with indulgence, and probably be found acceptable, inasmuch as they are drawn from the best sources of information by one who was for many years employed on that survey, and felt an enthusiastic interest in its progress and execution. I should have deemed it presumptuous to have engaged to prepare this paper for the Society, but for the conviction that the fulfilment of such an undertaking by any other person would perhaps have been attended with considerable difficulty, and the conclusions, so drawn, might after all have been judged far less satisfactory than as they now come from the pen of a soldier little used to description, though intimately conversant with the nature of the countries surveyed, the circumstances and capabilities of the parties employed, and the several methods which were used under all the discordant and conflicting emergencies, in despite of which so much has been accomplished.

It may be expected, however, that I should preface this account with a few remarks on the progress of geographical knowledge generally, as an appropriate introduction to that of Asia, and bring it down to the period when our acquisitions in British India began to assume an importance to the country, which demanded a more energetic exercise of authority, and established the East India Company in the administration of its government. An analysis of this sort is chiefly instructive as it illustrates the march of intelligence, and the advance of the arts, and perhaps as throwing some light on communications which have occasionally been received with interest by the Society respecting the early navigation of the ancients.

In taking a cursory review of the progress of the most interesting and important departments of knowledge, it seems difficult to account on any rational principles for those singular contemporaneous fits, those widely-diffused impulses which circumstances absolutely unconnected with each other concur to produce in the minds of individuals, directing and instigating them to occupations and researches in extension of the most valuable objects and pursuits which have engaged the attention of the civilized world. Neither is the question satisfied on the ordinary plea of necessity. Take what department you will, though necessity shall be clearly shown to have been equally imperative, and the times proportionately fertile in expedients at the periods when such inquiries were instituted, there is a ripeness of season at which every project that is started, every effort in aid of individual sagacity or industry can alone be productive of fruit. Nor are the advances to such state, although unobserved, less subordinate to this remarkable principle. Like the return of suspended animation, the first symptoms of change are almost imperceptible, but at length the new accessions of vitality and strength are visibly increased, and the struggles of life go on with a marked and characteristic rapidity till the recovery is perfect. And it is thus, more probably, with that unnatural state of ignorance which has hitherto supervened for many ages, than to any progressive advance of the mind, whether intuitive or produced by external causes, that we should rightly apprehend the present strides of science. From a state of inanimation the moral and intellectual pulsation has been at first comparatively slow, and indistinctly perceived. The exhibition of every successive effort is a characteristic harbinger of higher and more rapid degrees of improvement,—an improvement which will eventually lead to every desirable approach to perfection.

Whatever may be the most rational account of this remarkable and simultaneous concurrence of events, many people are content to dismiss the difficulty, by referring it either to the particular occasions which call forth individual talent, or to the influence of certain master-spirits on the subsisting state and character of society. And doubtless it is on this showing, that War or Peace, Freedom or Servitude, commercial enterprise or despotic tyranny, are presumed by one or other of us to operate as so many spurs or checks to the further progress of the human race in the chief desiderata of science and art. Without going at any length into the proofs of this assertion, we might advert to the remarkable literary inquiries and establishments in the eighth and ninth centuries, instituted or fostered at one and the

same period, in connexion with the religious persuasions of the Christians, the Mohammedans, and the Boodhists. The peculiar encouragement thus held out to the cultivation of the Latin by Charlemagne and his immediate successors in France and Germany; of the Arabic by the Khalifs Almunsoor, Haroun Alraschid, and Mamoon; and by the respective sovereigns of India, Thibet, and China, of the Sanskrit, Pali, and Thibetian languages;—these were eminent though unconscious precursors of those subsequent discoveries, to which we now recur with especial admiration.

Geographical science furnishes also another and appropriate illustration of this fact. The simultaneous exertions of many individuals wholly unknown to each other, to institute inquiries preparatory to that enlarged and more exact acquaintance with the relative situation of countries and objects on the surface of the globe, its precise form, dimensions, distribution, and local peculiarities; these all have followed successively at intervals, as investigations supposed to have originated in fortuitous circumstances which some one or other of the foregoing causes had contributed to elicit or suppress. This view of the matter, however discursive it may be thought by such as are indisposed to general reflections, is of consideration chiefly, and indeed solely, as it shows us the position we actually occupy, while it presents us with a cheering and magnificent prospect of what is yet to be effected and anticipated in this most essential article of information.

The most striking feature of these investigations is sufficiently exemplified in the progress of geographical discovery from the fifteenth century, when the long dormant energies of the descendants of the Phœnicians, or the jealousy and rivalry of other nations prevailed with the Spaniards and the Portuguese to wrest the commerce of the East from the hands of the Venetians, or to strike out new and unexplored paths for industry, enterprise, and social intercourse, in subservience to the spread of what was usually held out to be the paramount design, the communication of religious truth. The great object of the Portuguese, in point of fact, may probably be referred to their anxiety to dispossess the Venetians of their important commercial advantages in Egypt. The memorable treaty of that people with the Mamelukes, and their arrangements to defend the desert against the Portuguese, sufficiently demonstrate the real spirit of the restrictions to the first navigation to India. The severe system of taxation imposed by Sultan Selim, who conquered Egypt in 1512, and the avarice of his successors, contributed also to engage the Portuguese to follow up the discovery of India by that of still more remote lands—for then

only were the great commercial importance of their discoveries rightly understood.

Whatever may have been the amount of our acquaintance with the Asiatic countries, and India in particular, previous to that time, it would serve us little to examine more particularly, excepting only as it affected the question of the maturity of science in past ages. That the intercourse of the ancients was more extensive, even with the remotest parts of Asia, than has been usually admitted by European writers, will unquestionably be agreed to on examination, and thus a multiplicity of customs, laws, and institutions be legitimately referred to a common origin, which on any other supposition are altogether inexplicable.

The Spaniards unexpectedly arriving at their destination by a much shorter route than the Portuguese, left the latter uninterruptedly to pursue the great design of reaching India by sailing easterly ; and of the courage and boldness of the two nations, we may be disposed, on mature reflection, to doubt whether the palm was not more justly due to the Portuguese. It was indeed a bold step, after having advanced so far to the south, to turn to the east, and realize in some sort the first move to the circumnavigation of the globe, since it was in fact almost on the very heels of the first adventures of the Portuguese that this great problem was solved by Sir Francis Drake* and Oliver Vander Woort. The voyages undertaken by the Spaniards and Dutch to the Spice Islands were likewise as stepping-stones to a greater achievement, the honour of which was reserved for our own country, just one hundred years after Bernal Diaz rounded the Cape.

And here it may be pardonable, in reference to the early commerce of the ancients, to advert, though briefly, to the singular advantages, in a geographical point of view, which the Jews possessed over every other nation of the earth, inasmuch as that remarkable people, being the chosen depositaries of institutions and laws pre-eminently superior in their moral and social tendency, they were thus in a manner encouraged and counselled to the fulfilment of higher objects in the designs of Providence, by the most extensive interchange of the commodities of their own for those of other distant lands. Palestine, as it were, the key to the commerce of the whole earth, was accessible to the shores of India, Arabia, and the eastern coast of Africa, by a branch of the Red Sea. By the Mediterranean its communications with the northern and

* The motto given to Sir Francis Drake by Queen Elizabeth quaintly expressed his merits—" Tu primus circumdedisti me," surrounding a terrestrial globe.

western coasts of Africa, the eastern shores of Europe, and by no very hazardous route with the shores of America, were equally easy, while the Black Sea, the Caspian, and the Persian Gulf, presented facilities in other quarters which no other country could have boasted of. That the ancients had a knowledge of those countries, and that they had actually circumnavigated Africa, is as probable an inference, from the testimony of Herodotus, as that the intercourse with the East was familiar to the Jews so early as in the reign of Solomon, when they trafficked for ivory, apes and peacocks, since the latter are peculiar to the countries east of the Indus. The testimony of Herodotus to the circumnavigation of Africa by the Phœnicians is remarkable, and to many may appear as conclusive as curious. The authenticity of the passage indeed has, like many others of a similar description, been disputed by critics on account of the remark that "when autumn arrived they drew to shore on that part of Libya opposite to which they might be, sowed the grain, and awaited the harvest, which, when they had reaped, they again set sail; a conclusion, however, which, as well as that of the sun's rising on the right hand as they rounded the extreme promontory, and the resistance opposed to their further progress by the contrary currents and accumulation of sea-weed in 14° S., mentioned at the termination of the narrative, all bespeak alike the fidelity of the historian and the veracity of his informants.*

* "I wonder at those who divide and lay down the boundaries of Libya, Asia, and Europe, as if the difference between them were not very great; for, while in length, Europe extends along both, no comparison can be formed by which to estimate their relative width. Libya declares itself to be circumnavigable, except where it is bounded by Asia. The first person known to have proved this was Necho, King of Egypt. When he ceased to carry on the canal leading from the Nile to the Arabian Gulf, he sent out some Phœnicians, instructing them to sail round by the Pillars of Hercules (Straits of Gibraltar) to the Northern Sea (the Mediterranean), and so return to Egypt. These Phœnicians, therefore, parting from the Erythræan Sea, navigated the Southern Sea. When autumn arrived they drew to shore on that part of Lybia opposite to which they might be; there they sowed the ground, and awaited the harvest, which, when they had reaped, they again set sail. Thus they continued their progress during two years; in the third, doubling the Pillars of Hercules, they arrived in Egypt. These persons affirmed, what to me seems incredible, though it may not to another, that, as they sailed round Libya, they had the sun (rising) on the right hand. In this way was Libya first made known.

"Long after the Phœnician voyage, as the Carthaginians relate, Satapses, son of Teapses, of the Achæmenidian family, was sent to circumnavigate Libya, though he failed to accomplish his task; for, appalled by the length and desolation of the voyage, he turned back without having achieved the toil imposed upon him by his mother. This Satapses had violently insulted a daughter of Zopyrus, son of Megabysus; for which offence he was about to be impaled by the order of King Xerxes, when his mother, who was the sister of Darius, interceded for him, saying that she would inflict upon her son a still greater

These are considerations, however, which many may reckon more fanciful, or at best, more speculative than conclusive and useful. Let it be remembered, however, that one step made towards the solution of any difficulty is calculated to pave the way to the solution of others :—and while we dwell on the beauties of classic literature, we are frequently tempted to discredit the accuracy of the author on the ground of one mis-statement, or disparage his writings on the score of puerility or fiction. Thus also, when tracing similarity of moral institutions and civil usages in remote parts of the earth, where intercourse had not been suspected, we are in a like degree prone to conclude against a degree of civilization and intercourse, which may be founded in reason as well as in fact, from not having sufficiently examined or considered the evidences to the contrary.

The commercial expeditions to India by the Romans, the Egyptians, and at a later period by the Arabs, were of too exclusive a nature to throw much light on geography ; vestiges of the former on the coast of India are still to be found throughout Malabar, where large collections of Roman coins have escaped the furnace of the goldsmith.* The Egyptian fleets were encountered by the Portuguese on their first arrival in India, and the Arabs had for many centuries colonized not only on the whole line of coast from the Persian gulf to Cape Comorin, but had established themselves on Ceylon, and all the principal islands of the Indian archipelago. In

punishment, for she would lay upon him the necessity of circumnavigating Libya, until he should arrive in the Arabian gulf. Xerxes consented to this proposal, and Satapses going to Egypt, there hired a ship and mariners, and thence sailed through the Pillars of Hercules. Having passed these, and doubled the extreme point of Libya, which bears the name of Soloëis, he sailed southward ; but after traversing, during many months, a vast extent of sea, and knowing that still more must be passed, he turned his course, and sailed back to Egypt. Thence he proceeded to Persia, and presented himself before Xerxes. He said, that on the remotest part of the coast along which he sailed he saw men of diminutive stature, clad in leaves of the palm-tree, who, whenever the sailors drew to shore, abandoned their towns, and fled to the hills. His people entering, did the natives no other injury than taking their cattle. The reason why he could not sail entirely round Libya was, he said, that in attempting further progress his ship stuck fast ; but Xerxes not giving credit to the excuse he made for not fulfilling the appointed task, condemned him to undergo his first sentence, and he was impaled. The chief officer of Satapses, instantly as he heard of his death, fled to Samos with great wealth. This treasure was seized by a certain Samian, whose name I well know, and purposely conceal."—*Herodotus*, Book iv., Section 3.

* A very large and most valuable collection of these coins is now in the possession of a native at Palghautcherry ; and Mr. Sparks, of the Madras civil service, told me he had been particularly successful in procuring many rare specimens in that province.

such state of things Europeans found the navigation when they first became acquainted with it; but for the successive improvements it has undergone from this period, we are much indebted to the diligence of persons unconnected with official duties.*

The circumnavigation of the globe was, however, too much to be taken on trust, and the relative situation of countries needed further confirmation. These were pursued with unabated curiosity, till in seeking to assign to objects their proper place on its surface, the precise form of the earth and its dimensions, new and still more intricate problems were found to be indispensably necessary. It is in this stage of the proceedings that we purpose to notice the most prominent particulars connected with the geography of Asia, more especially those departments of it which relate to India, and the valuable maritime surveys instituted and carried on by the public spirit and munificence of the Honourable East India Company.

The contemporaneous experiments of Picard in France, of Snellius in Holland, and Norwood in our own country, for the measurement of a degree on the meridian, had given rise to many curious speculations, which, in conjunction with the mathematical deductions of Huygens and Newton, revived in the early part of the eighteenth century the contested problem of the determination of the earth's ellipticity. In the researches incident to such inquiries, much new geographical matter had been added to that acquired from other sources, and every resulting formula so obtained was systematically applied by Cassini and Danville to the improvement of the charts and maps of other countries. They were indeed remarkably qualified to originate geographical projects, and reduce the stores of information which were daily flowing in from all quarters, and for a considerable period the maps of the latter as respects India and the neighbouring countries were the best we had. But a vast field had at length been gradually opening out for like investigations in India, as in Europe, by the extension of the theatre of war to the most distant and hitherto unexplored provinces, and the gradual subjugation of the princes lately confederated with the French nation. Major Rennell of the engineer corps, whose celebrity as a geographer is familiar to all of us, was the first person who reduced the miscellaneous materials collected by British officers on the same principles, and in pointedly stating his obligations to Monsieurs D'Apres' Neptune Orientale ; and to M.

* Horsburgh, the self-taught cabin-boy, and one of the first hydrographers in the world, is an instance in point.

Danville's maps of Asia and India, published in 1751 and 1752, he eulogises with astonishment the skill and tact with which that excellent geographer availed himself of the scattered notices derived from vague itineraries and books of travels.

This observation of Major Rennell, respecting Danville, may lead us to estimate the peculiar talent which enabled him also, under existing circumstances, to produce so much valuable information respecting countries that were inaccessible to European observation; it was the talent of comparing and collecting, the habit of selection, and a judicious application of such selection to one uniform system—requiring no ordinary share of patient investigation and deference to truth, to the exclusion of whatever might be either speculative or unknown. A memorandum or simple route enabled him under such restraints to fix the position of many interesting places with a very tolerable degree of precision. To every thing there must be a beginning, and with reference to those who are disposed to under-value labours of this sort, it may be well to offer in extenuation that the master hand is as frequently displayed in the first rude outline or design as in the finishing touches of a portrait; and a hasty sketch is, in its way, calculated to express frequently as much as can be conveyed by a more perfect delineation. With regard to Major Rennell's opinion, that the public records at Goa contained much that might have served to illustrate eastern geography generally, he was doubtless mis-informed, as I had the most unlimited access to every thing of that sort for several years, and was assured that if any thing had been deposited in the archives prior to 1700, it had been abstracted or destroyed at the instance of the Marquis of Pombal.

Having once laid down a general plan, everything additional fell in its proper place, and served at least to recommend more perfect and accurate surveys to succeeding investigators. Such as his information was respecting Berar and Bengal, it is still the most complete we possess, though the rewards and credits were in a measure bestowed on a far less gifted and successful observer, Colonel Charles Reynolds. There is one way, however, of satisfying those who are over-scrupulous, and can find no merit in adjustments so dependent, as they may argue, upon chance, which I will venture to affirm is unanswerable, and that is, a comparison of the latitudes and longitudes of the principal points determined by Rennell, and the results of the great trigonometrical survey. The coincidences indeed were more than sufficient to justify that remark made many years ago by Johnson, in his Tour to

the Hebrides, that many parts of India were better known than the northern parts of Scotland.

Many very intelligent officers soon followed in the train of Major Rennell ; Captain Moncrieff, of the Bombay Engineers, Captain Mackenzie, of the Madras Engineers, and Colonel Charles Reynolds, who were all three very early distinguished for their capacity in this line. The former, in his progress through Canara and Malabar, produced a valuable geographical sketch of those provinces subsequently incorporated by Colonel Reynolds in his large map of India.*

It is not too much to conclude that some portion of the characteristic spirit of Rennell had been communicated to all those who were placed in connexion with him in his official capacity of surveyor-general ; for about the time of the publication of his Memoir of a Map of Hindoostan, a variety of documents were placed on record, which were suffered to pass unnoticed, and there is still much in them which would deserve preservation. On the 14th January, 1780, Mr. Charles Chapman was deputed to the government at Cochin China, to inquire into the advantages of a commerce with that country, and to endeavour to establish a freedom of trade to all the Company's settlements, under sanction of the ruling power of the place. A narrative of his proceedings and observations on Cochin China and Tonquin, in pursuance of this mission, was forwarded to the Court. Another document, with a set of drawings of lands as they appear in the eastern passage to China, according to the bearings laid down, was sent in by Mr. George Grey Townshend, on the 24th January, 1791; and a further description, with charts of Cochin China, by Mr. George Taswell, on the 9th August, 1799. Lieut. Colonel Kyd, of the Bengal Engineers, Mr. Ritchie, Colonel Colebrooke, and Captain Blair, furnished at intervals various astronomical particulars, and written information respecting the Ganges and the Hooghly rivers, as did Lieut. Wood, Mr. Reuben Burrows, and Mr. Michael Topping, on the coasts of Arracan, the Delta of the Ganges, and the latter of the entire eastern coast, from the embouchure of that river to Cape Comorin. The volume of astronomical observations by Mr. Reuben Burrows, 31st January, 1791,

* Captain Reynolds' Survey of Bednore, on a larger scale than any which had then been attempted (four miles to an inch) first brought him into public notice, and deservedly so, both from the minuteness and accuracy with which it was executed, and its extent and completeness, considering how very few there were at that time who paid any attention to science.

may probably contain many well-determined points which have not yet been ascertained either by Captains Ross, Crawford, or Grant. They are accompanied at least by sketches of the coast, done with much care, and referred to a series of bearings, latitudes, and longitudes, which is to be inferred from the fact, that the entire book is throughout in the hand-writing of that skilful mathematician.

Mr. Michael Topping's observations on the currents in the bay of Bengal, of the 1st March, 1788, on the 16th January, and 26th June, 1792, may probably be found of essential importance in future investigations respecting the retreat or advance of the sea on the east coast of India, and the exact registration of the tides. His survey of the mouths of the Godavery river and Coringa road, 18th September, 1790, and 21st January, 1791, and his proceedings and report in the Masulipatam Circar, drawn up with a view to ascertain the practicability of applying the waters of the rivers Krishna and Godavery to the fertilization of the land, with charts, observations, and levels, communicated 20th February, 1794, and 2d October, 1795, may yet induce the Madras government and authorities at home to reconsider that valuable project.

I have drawn up this summary account of a few of the most remarkable attempts to add to our stores of geographical and hydrographical information before the conquest of Mysore, during which interval the office of surveyor-general had been held successively by Colonels Call, Charles Reynolds, and Colebrook. I should not omit, however, to notice the valuable maritime surveys of Captains Huddart and M'Cluer, and Lieutenants Ringrose, Wedgeborough, and Skinner, on the western coast of India, from 1790 to 1793, which still continue to be good authority to navigators of that coast, and were actually incorporated by Colonel Reynolds in his map. At the time they were delivered to the government an outcry was raised against their accuracy, which subsequent inquiry has shown to be without a shadow of justice; and I may mention it as a corroborative proof of the attention and skill which must have been bestowed on the subject by Captain M'Cluer, that in carrying on a trigonometrical and topographical survey of the coast upwards, with all the helps and improved methods for which our recent acquisition of the country afforded also greater facilities, I found the actual outlines of the coast and exact distances differ very immaterially from those in M'Cluer's charts, and I had the more favourable opportunity of verifying the fact, as the superintendent of marine furnished me with Captain M'Cluer's original drafts, on a large scale, for this express purpose.

Such was the state of our acquaintance with India down to the breaking out of the second war in Mysore in 1799, established for the most part on the valuable deductions of Major Rennell and Danville, whose labours were eventually incorporated with a mass of native information of indifferent character in the large map of Colonel Charles Reynolds. And here it may be well to pause for a while, and take a general review of the state of geography in India as compared with that of our own country, where many of us would willingly believe some much more marked advance had been made to an accurate acquaintance with the position and superficial extent of the British territories, than in less civilized lands; and that a maritime nation at least, such as England, had been long in possession of the most accurate charts of its own shores, which should enable its shipping, in the event of anticipated peril or stress of weather, to avail themselves of every advantage presented by peculiar natural localities.

In countries where the inhabitants are comparatively backward in point of civilization, where there are but few large towns, where commerce is not the primary pursuit, and there are hardly any great roads, the delineation of the great features which they present has usually been deferred till they have become the theatre of war, and even then are supposed for all ordinary purposes sufficiently complete by the collation of routes, corrected here and there by observations for latitude and longitude. It is argued that the difficulties to be surmounted, and the advantages to be expected, could never be commensurate with each other, nor would the expense of money and life thus bestowed be in any adequate degree compensated by the information acquired. Where so much is necessarily left to imagination, it is inconceivable how little dependence is to be placed on the generality of such compilations, how much interpolation and repetition also of rivers and towns, and other principal objects, are incident to the mere inconsistencies of orthography. My particular attention was drawn to the latter circumstance, on going over the tract of country on the western coast of India, and comparing the actual survey with that compiled by Colonel Charles Reynolds in 1798.

Moreover, as in route surveys much is left to the eye, to the judgment of the observer in estimating distances, as well as to his candour in drawing inferences from the various descriptions of information presented to him, it very rarely happens that any two practitioners, and they are usually self-taught amateurs, arrive at the same conclusions. The very same provinces, therefore, which purport to have been laid down from the most accurate observations of such persons have occa-

sionally a degree of dissimilarity to each other, which leaves the compiler quite at a loss on what principle to reconcile their discrepencies. The repetition of such surveys serves only to increase perplexity, where some even of the principal towns and geographical features are most unceremoniously shifted several miles, while their exact position is still matter of doubt, if happily he should not find them in two places wide apart.

Such, anterior to the commencement of the great trigonometrical survey in Great Britain, was the only method in general use, and it will not be out of place to mention that there were then errors in the positions of some important points, as the Lizard, to the amount of seven minutes of a degree, and that many of the best county maps exhibited blunders of three miles in a distance of less than twenty.

The various surveys throughout India and in Bengal, to a still later date, have, with few exceptions, been conducted in like manner, and the maps of districts under the latter presidency have, in consequence, been proportionally erroneous. To remedy this defect has long been desired, but it is a task not easy at first sight to determine how a measure fraught with so many difficulties is to be effected without an extravagant outlay of money.

The great map of India constructed by Colonel Reynolds was formed also on the foregoing principle. One extensive line of route running through several degrees of latitude from Goojerat to Hindoostan, and corrected where it terminated on either side by observations of latitude, having been measured with considerable care, constituted a primary basis, to which other routes diverging on either hand were referred, and the intermediate spaces filled in from native information, or the labours of his assistants, Colonel Monier Williams, Sir James Sutherland, and other officers. This was until very lately the foundation of the entire map of Cutch, Kattywar, Goojerat, Hindoostan, and Rajpoothana, corrected at times by route measurements under his successor Colonel Monier Williams. The expense of this imperfect geography from first to last has been incredibly great, but the reputation of Colonel Reynolds' system and of his successors in office stood so high with the Bombay government, that every suggestion for improved and more conclusive surveys was invariably negatived as superfluous.

A collection of routes and other information collected by Colonel Kelly, and suggestions for the improvement of the south of India, by Lieutenant-Colonel Gent, chief engineer at Madras, on the 28th January, 1784, followed up by a large and valuable compilation of

routes by Captain Mackenzie, during a period of twelve years, four of which were incessantly devoted to that duty constituted the basis of the geography of the south of India, lying principally between the Krishna river and Cape Comorin. Captain Mackenzie's labours began towards the close of the war of 1783, in the provinces of Coimbatoor and of Dindigul, afterwards in the course of his professional duties as an engineer in the provinces of Madras, Nellore, and Guntoor, throughout the whole of the war from 1790 to 1792 in Mysore, and in the countries ceded to the Nizam by the peace of 1792, from which period till 1799 he was engaged in the first attempts to methodize and embody the geography of that prince's territories and the Deckan, interrupted only for a short period by the voyage and campaign to Ceylon in 1795-6. The peculiar talents of Captain Mackenzie for geographical and statistical inquiries had been early brought to the notice of Lord Cornwallis, and his deputation to the Nizam's dominions, at the conclusion of the campaign of 1792, enabled him to reduce the materials for the map of that prince's territories to some degree of order. This map with the routes, memorandums, and notes, constituted the most useful exemplar of military survey, and contains, besides actual measurements, a multiplicity of curious and useful remarks on every subject that fell within his reach.

But a new and important era was now opening on this department of knowledge throughout the civilized world. The defectiveness of the best British maps, the revolutionary turn of affairs in France, and an accidental circumstance of the most unlooked for nature led in each of these countries to the entire remodelling of the respective surveys.

The British government having deputed Lord Macartney on an embassy to the Emperor of China, charged their ambassador with various magnificent presents, and amongst others some which perhaps even our modern intellectual diplomatists would consider a little out of character, a beautiful zenith sector and 100-feet steel chain, constructed by Ramsden, a levelling and transit instrument, besides other apparatus of a like costly and scientific description. The Emperor having declined this conciliatory offering, the embassy stopped at Madras on its return homewards, and on coming to a reckoning with Dr. Dinwiddie, the astronomer and physician who had accompanied Lord Macartney, the luckless instruments were assigned to him in part payment of his salary. The mathematical abilities and philosophical turn of mind of Colonel Lambton, at that time a lieutenant in H. M. 33d regiment, had not escaped the observation of its distinguished commandant, the Honourable Colonel Wellesley. Lieutenant Lambton, who was at that time officiating as brigade-major to Sir David Baird, hav-

ing accidentally become acquainted with the circumstance, and confident of his own powers, made interest that these valuable instruments should be rescued from the auctioneer, and turned to some national account. The Earl of Mornington, the governor-general, on the final reduction of Mysore in 1799, being then at Madras, concurring with his brother in the advantageous opportunity thus presented for carrying on an extensive survey of the Mysore dominions, further nominated Captain Mackenzie to the topographical details, while the statistics were assigned to Dr. Buchanan.

Events had thus fortunately concurred to the furtherance of the design proposed by Lieut. Lambton, and humble as this tribute may appear, it is no less just than due to ascribe the first encouragement of the measurement of the largest meridional arc that has ever yet been undertaken throughout the world to his grace the Duke of Wellington. Every one who has experienced the difficulty of maturing any useful project, can better appreciate the patience and foresight which could have led his Grace to recommend Lieut. Lambton's novel scheme to the government of India, prepossessed, as it had hitherto always been, in favour of the sufficient accuracy of mere geographical and route surveys.

At his Grace's suggestion to Lord Mornington, Mr. Petrie and Lord Clive, then governor of Madras, the instruments were purchased on account of government, and in furtherance of this project, a large theodolite similarly constructed to that used by General Roy, as also an altitude and azimuth circle for secondary triangles were made in England by Cary, and by the year 1801 all the requisite apparatus was at Lieutenant Lambton's disposal.*

In the year 1800 a plan of the intended operations was submitted to the government of Fort St. George, and with their sanction published in the seventh volume of the Asiatic Researches. It was here proposed to join the coasts of Malabar and Coromandel by a series of triangles, which might be extended on the south to the extremity of the peninsula, and to an indefinite distance on the north, on a plan similar to that which had lately been adopted in France and England. In the month of October of that year, a base line was measured near Bangalore, and the first experiments were made with the zenith sector at Dodagoontah. In the early part of 1802 a base line was measured near Madras, and in the mean time a new chain had been received from

* Much of the excellence of these operations has been attributed to the skill of the artists Ramsden and Cary in the apparatus employed, and it is not out of place therefore to bring such high testimony before the public in the Society's Memoirs.

Mr. Ramsden, which professed to have been laid off at the temperature of 50° Fahrenheit from that artist's bar.

Lieutenant Lambton's first operations after this, were to carry on a series of triangles depending on the Madras base westward, to meet the Bangalore base, and finally the west coast near Mangalore. In pursuance of this intention, he established the meridians of Carangooly, Kylasgurh, Terrakondah, Severndroog, Mullapannabetta, and Balroyndroog, the positions of each of which he determined with relation to the Madras observatory. He also essayed to measure two perpendicular arcs, viz., those connecting Severndroog with Yerracondah on the east, and Mullapannabetta on the west side, each being nearly sixty-seven miles in length.

No country or circumstances could have been more favourable for such an attempt, whether we regard the skill, intelligence, and zeal of the operator, the excellence of his instruments, the liberality and freedom from restraint which he experienced on the part of the government, or the fortunate situation of the eminences on which his stations were chosen. But it was his opinion that he had failed entirely in deriving any results to be depended on from his perpendicular arcs; and it is now, I believe, the general opinion among mathematicians that longitudes cannot be determined by this method, but must be deduced from other sources.

About the same period Lieutenant Lambton carried a series to the southward, which terminated at a place called Trivandapooram, near Cuddalore. Here he determined the latitude by a sufficient number of zenith distances, and he then proceeded to Pauedre, a place nearly under the same meridian, where, by another set of zenith distances, he found the amplitude of the celestial arcs between the north and south points of a small meridional series, in middle latitude 12° 32′ 21″. This arc forming no part of the principal meridional series, which passes through Dodagoontah, was subsequently carried by him to the southward down to Punnae, near Cape Comorin, and finally to the northward as far as the parallel of 21° nearly; but as the particulars of these operations are all in the possession of the Court of Directors, it would be superfluous to enter into any description of them in this Memoir. The meridians of Severndroog and Dodagoontah are so near to each other, that the same series connects both: for geographical purposes, such as the determination of latitudes and longitudes, the former is used, the latter only being reserved for scientific details.

The measurement of a base of verification, and the observation of a set of zenith distances near Beder, in the year 1815, by Lieut.-Colonel Lambton, brought the great meridional series up to the parallel of 18° 4', and with it, of course, the series of Severndroog. In 1817 this series was continued to the northward to the Godavery river, the triangles then branched off to the eastward to meet the Yerrakondah meridian, down which a series was carried to the former points on the Krishna. In 1819 Colonel Lambton determined to bring up the series of Carangooly to the same parallel with those of Yerrakondah and Severndroog; but as the operations proceeded the features of the country seemed favourable for completing the intermediate series of Kylasgurh also, and by the end of 1820 both these series were satisfactorily conducted to the Godavery, though, it must be observed, that the unhealthiness of the tracts was such as to occasion great loss of lives, and to ruin the constitutions of almost all engaged in the laborious task. In the two following years the meridional arc was extended to Ellichpoor, and a base of verification measured in the valley of Berar by Colonel Lambton in person: the lateral series connecting Bombay with the base line at Daumergiddah, in latitude 18° 3', was temporarily interrupted by the death of this distinguished officer on the 20th of January, 1823. From that period the operations have devolved on Major Everest, F. R. S., whose conjoint labours with Colonel Lambton have been brought before the public in a separate publication. Major Everest has subsequently carried on the meridional arc from Seronj, in latitude 24° 7', to Kedar Kanta, in the Himalaya mountains, in latitude 31° 2', verified by a base line in the Deyra Doon, situated near the foot of those mountains.

A lateral series connecting Calcutta and Benares with the great meridional arc at Seronj, by Mr. Oliver, and another series from Bombay, by Lieut. Shortrede, has established the relative positions of the three principal stations in India.

A series of triangles by Captains Ward, Conner, Garling, Snell, and Jervis, has been carried on in the different provinces south of the 20th degree of latitute; and other lateral series, on four distinct meridians, are in progress to the eastward of the meridional arc, by Lieuts. Wilcox, Boileau, Macdonald, Waugh, and Renny.

I have purposely abstained from any observations on the continuation of the operations by Major Everest, as they will probably be given to the public by himself at no distant period, but consider it a theme of pride to our country to have had two so highly distinguished

and competent mathematicians as Colonel Lambton and Major Everest, and that the latter should have lived to have brought to a completion the most extensive, and probably, I may venture to add, also the most accurate measure of the earth that has yet been accomplished. Punnae, the southern extreme, is in latitude 8° 9′ 38″; Kedar Kanta in 31° 2.′ The total arc, therefore, is about one-sixteenth of the entire circumference.

On this triangulation as a basis, and on the various lateral series carried on by the officers and élèves of the excellent military institution established at the suggestion of Colonel Colin Mackenzie, of the Madras engineers, and ably superintended for many years by Captain Troyer, the whole of the peninsula south of the Krishna has been minutely surveyed in detail. The whole of the Bombay presidency, Khandesh and the eastern portions of Goojerat only excepted, remain unfinished. Of the Nizam's or Hyderabad territories a large portion has been accurately surveyed. The rajah of Berars, or Nagpoor dominions, have also been triangulated and surveyed, though with less attention to accuracy. The survey of the Northern Circars by Lieutenants Sackville, Buxton, and Snell, completes the portion designated as the Peninsula. North of this, of which the Nurbudda is the boundary, a very large portion under the Bengal presidency has been likewise surveyed, according to the methods already adverted to, that is, route surveys corrected by astronomical observations; and on the eastern frontier much geographical matter has been added by Lieutenants Wilcox, Pemberton, and Grant.

But we reserve the more complete and exact details, both of these surveys and of the still more important and valuable surveys conducted by the officers of the Indian Navy, to a future opportunity.—*Journal of the Royal Geographical Society, Vol.* 7. pp. 127—143.

(To be continued).

2.—*A Sketch of the Progress of Geography;—and of the Labours of the Royal Geographical Society, during the year* 1836-7. By the Secretary.—Read at the Anniversary Meeting.

Seven years have now elapsed since the foundation of the Geographical Society of London,* and at the close of its first septennial period we may perhaps be permitted to recall the chief geographical discoveries that have marked each year of its course, before proceeding to the more general subject of the progress of geography during the past year.

The first year of the Society's existence was signalized by the solution of that remarkable geographical problem, which had already caused the sacrifice of many valuable lives, and which may be characterized as the greatest geographical discovery since that of New Holland—namely, the course and termination of the river Niger, or Quorra, by the brothers Richard aud John Lander, who navigated its stream from Yaoori, in lat. 11° north, to the sea in the Bight of Benin—a distance of 600 geographical miles.

The year 1832 was remarkable for discoveries in the Antarctic Ocean—effected by Mr. Biscoe, R. N., who, commanding the brig 'Tula,' in the employ of those spirited merchants Messrs. Enderby, of London, succeeded in reaching a high southern latitude, where he discovered two considerable tracts of land—viz. that justly named Enderby's Land, in long. 47° E., and Graham's Land, with Adelaide Island, &c. in 67° W.—all nearly on the Antarctic circle.

In 1833 we had to turn our eyes to the opposite pole, where Ross, and his gallant band of British sailors, had passed three years amidst the ice of the Arctic Seas—and then unexpectedly returned to their country, bringing accounts of their close approach to the magnetic pole, and of the discovery of a large tract of hitherto unknown coast-line of the peninsula of Boothia,—and not less in importance, a proof of the moral courage displayed by this band of sailors, under circumstances of privation and hardship almost unexampled in the annals of discovery.

The year 1834 was marked by a successful and important journey across central Asia, by Lieutenant A. Burnes, E. I. C.; during which he obtained much information on his route from Cabul, across the

* Yet be it remembered that the African Association had existed since the year 1788—and the Palestine Association since the year 1804, and these were purely geographical societies, and many important discoveries were made under their auspices.

Indian Caucasus, to the ancient cities of Balkh and Bokhara, and added considerably to our former knowledge of the course of the river Oxus, and generally to the physical and political geography of Upper Asia.

In 1835 we had again to revert to North America and the Arctic Ocean, where our gallant countryman Back discovered and followed to the sea the great river which now justly bears his name, tracing its course in a north-east direction, a distance of 600 miles from its source to the ocean; and there, on the shores of the Frozen Sea, obtaining such evidences of the great probability of a communication by water along the northern coast of America, in the parallel of 69° or 70°, that the government has again entrusted to him the command of an expedition which we sincerely trust may, by tracing the northern shore of America, set the seal to Arctic discovery; and thus reward the enlightened perseverance of the British government, and the courage and enterprize of its servants.

Such are the discoveries for which the Royal Premiums, graciously placed by his Majesty at the disposal of the Society, have successively been awarded by the council.

From such high and animating ground of discovery let us descend to the more humble, yet not unimportant details of the progress of geography during the past year. And fully aware of the difficulty of the task, and conscious how imperfect such a sketch must of necessity be, it is undertaken with the hope that by endeavouring to state what has been done, and briefly pointing out what remains to do, it may be the means of rousing others to join in reaping the ample harvest which is yet offered to those who take an interest in the study of some of the many branches of geography.

EUROPE.

Civilized Europe, it might be imagined, at first sight, would offer no field for geographical research; and, in fact, a rapid journey over the greater part of Europe could not add much to our knowledge of its physical geography; but when we search for rigorous astronomical and statistical observation—for correct topographical detail—for a precise delineation of its physical features—for an exact outline of its coasts, and the depth of water in its various seas and channels—we search almost in vain; yet much has lately been done towards attaining such a knowledge of this part of the earth's surface as the advanced state of science and civilization imperatively demands.

British Isles.—It is on this principle that the national map of England, known by the name of the 'Ordnance Map' (begun in 1796), is at present being executed, under the zealous superintendence of Captain Colby, R. E., and engraved on the scale of an inch to a statute mile, or $\frac{1}{63000}$ of the natural scale: two sheets have been added to this survey during the past year, and sixty-nine sheets are now published, comprising all the southern and midland counties; four or five more sheets may shortly be expected;—while the geological examination of the country, under the able direction of Mr. de la Beche, now combined with the topographical survey, will greatly enhance the value of the maps.

A cadastral survey of the country, on the scale of $\frac{1}{2376}$, or nearly 27 inches to a mile, to show the boundaries of parishes, &c. has been proposed, but it appears not to be considered necessary.

No national map of Scotland exists, but the points of the great triangulation are established, and the private munificence of individuals has filled in the detail of some of the counties—Sutherlandshire, for instance, at the expense of the Duke of Sutherland, &c. A small general map, on the scale of 8 inches to a degree, by Mr. John Arrowsmith, almost finished, combines all that is accurately known of Scotland. The geological map by Dr. M'Culloch, is likewise published. The detail of the coast-line is proceeding, under the superintendence of the hydrographer; and also an excellent map of the Shetland Isles, on the scale of half an inch to a mile, has been completed during the past year by Mr. Thomas, R. N., who has devoted some years to its execution.

The recent survey of Ireland, called the 'Towland Survey,' is proceeding rapidly. This truly national work, which does honour to the enlightened legislature that ordered it, and to the engineer officers who carry it into execution, is based on a grand triangulation, one side of which, connecting Ireland with England, is 108 miles in length; another, 101 miles, 93 miles, &c. Its detailed operations are completed with the most minute accuracy, on the scale of six inches to a statute mile, or $\frac{1}{10560}$ of the natural dimensions; exhibiting all the boundaries, distinction of barren and cultivated land, levels, &c.—in short, everything of practical utility; so much so, that a line of railroad or canal might be, and has been, projected* on the data supplied

* The projected railway between Derry and Enniskillen; also in the improvement of the harbour at Belfast.

by it, without any fresh survey—which could not, it is believed, be effected with the existing maps in any other country in the world.

The maps of ten counties, comprising 560 sheets, are published, and the work advances rapidly. Combined with this map a series of memoirs is publishing, which will make it as complete as can be expected in a work of the kind. Would that such a work were possessed by, or in progress in, every nation in Europe!

In concert with the land-survey the hydrographic department, under the zealous and enlightened superintendence of Captain Beaufort, is extremely active. Parts of the east and west coasts of England, the Irish Channel, the east coast of Scotland, the coast of Wales, and the northern coast of Ireland, have been accurately examined, and are still in progress. Added to this, a minute and beautiful chart of the North Sea, executing by Captain Hewett, and showing, with the greatest accuracy, all the undulating features of the wide but shallow valley—in no part exceeding 100 yards in depth—which separates our island from Holland and Europe, are gratifying proofs of the activity displayed by the government in the advancement of physical geography.

At length we may venture to boast of a work, worthy of the subject, on the *Physical and Political Geography of the British Islands*, forming part of the Library of Useful Knowledge, in which the physical features which mark the true face of the country are traced with a master's hand.

On general geography, with the exception of some articles in the Encyclopædias, and especially in the Penny Cyclopædia, no work has been published in England during the past year;* yet is the harvest so thoroughly gathered that nothing is left for the gleaner? Has the subject of the geographical distribution of man, of animals, and of plants† met with attention? Has ethnography, or the classification of mankind according to language—or its classification according to religions, been studied? Is there a traveller's manual, or a table of positions, or a general gazetteer, or dictionary of geography, worthy of the name, in our language?‡ It is to be feared we ask in vain.

* The valuable researches of Mr. Whewell and Mr. Lubbock, on the subject of tides, form an honourable exception; as do also the useful printed Tide Tables, published by the Hydrographic Office at the Admiralty.

† Mr. Watson's Sketch of Geography of Plants is an exception.

‡ It is a singular fact, that in the Index to the Reports of the British Association, and in that to the Magazine of Popular Science, the word Geography is not to be found; or if perchance, found in the former, it refers to nothing.

France.—The great topographical map of France, to be completed in 258 sheets, under the direction of General Pelet, of the Dépôt de la Guerre, has issued 12 sheets during the past year, making 48 sheets already published.

The publication of this admirable work began in 1833; it is executed with great care, on the scale of $\frac{1}{80,000}$, or about $\frac{9}{10}$ of an inch to a geographical mile, and is accompanied by a geometrical description, by Colonels Puissant and Corabeuf, reciting all the scientific labours on which the survey is based,—a very proper accompaniment to the national work. A map of Guienne, on the scale of $\frac{1}{43,200}$, or $1\frac{7}{10}$ of an inch to a geographical mile, is also publishing by the Dépôt de la Guerre: 50 sheets have appeared, and it is to be completed in 54 sheets. Conjointly with this survey, an accurate examination of the coasts of France is proceeding under the direction of Admiral Hamelin, of the Dépôt de la Marine, seconded by the zeal of M. Beautemps Beaupré, and M. Daussy; and some valuable charts and plans have been published by the Dèpôt during the past year, in addition to that excellent work, the Pilote François.

L'Atlas physique, politique, et historique de la France, which forms the third part of a Course of Comparative Geography, by M. Denaix, proceeds fast to its completion.

Belgium.—Under the spirited direction of a private individual, M.Ph. Vander-Maelen, at Brussels, whose topographical and statistical labours in his own country deserve the highest praise, two new works are just completed; one, a geometrical plan of Brussels, by M. Craan, in 4 sheets, on the scale of $\frac{1}{2500}$, or 29 inches to a geographical mile; the other, a map of the environs of Brussels, by Professor Perkins, in 9 sheets, from the cadastral survey, on the scale of $\frac{1}{10,000}$, or rather more than 7 inches to a geographical mile; which may be added to the numerous works already published at this splendid geographical establishment.

Sweden and Norway.—In addition to Colonel Forsell's map of Sweden, in 8 sheets, his excellent work on the statistics of the country has added much to our knowledge of this kingdom.

Iceland.—A French Commission, composed of several scientific men, headed by M. Gaimard, has this year visited Iceland, has thoroughly examined the country, and has brought home a large collection in na-

tural history. The results of the expedition in detail may shortly be expected.

Hanover and Brunswick.—The topographical map of these countries, in 67 sheets, by Papen, has issued 10 sheets during the past year. Also the various maps in course of publication in the different states of Germany have each added this year a few sheets to their number.

Saxony.—The map of Saxony, by Schlieben, has furnished 7 sheets, and the Statistical Society at Dresden is active in collecting and diffusing topographical as well as statistical information relating to the country.

Prussia.—Three sheets of the Government map of Prussia have been issued; and two of that by Engelhardt. A general list of the maps and geographical works in course of publication will be found at the end of the last volume of the Society's Journal, and which will be continued. The catalogue would be too long to enumerate them here; yet if those only were mentioned that are based upon strict principles, the number, it is feared, would be but small. The subject of the orthography of names of places demands serious attention; and this may be more especially remarked in maps of Asia and Africa. If the Geographical Societies of Berlin, of Paris, and of London could be induced to adopt some general standard for orthography of Arabic, Turkish, Persian, &c. names, perhaps all geographers, even if they might not fully approve of it, would, for utility's sake, adopt it.

Tuscany.—In addition to Padre Inghirami's excellent map, and Zuccagni Orlandini's Atlas of this state, Repetti is publishing a geographical dictionary of the Grand Duchy, which has reached the letter L.; thus, perhaps, no state in Europe will be more correctly described.

Greece.—Besides the admirable map of the Morea, made under the immediate superintendence of Captain Peytier and M. Puillon Boblaye, and published on the scale of $\frac{1}{200,000}$, or about 3 miles to an inch, the French have just completed a survey of 800 square leagues of Northern Greece, comprising Eubœa, Attica, Bœotia, Phocis, and Locris.* The

* See Bulletin de la Société de Géographié, Dec. 1836, and March, 1837.

disturbed state of the country prevented their proceeding with Acarnania and Etolia, about 600 square leagues more, which still remain unexamined, except the sea-coast of the former, which was surveyed by Mr. Cooling, R. N., in 1830. We have also the whole northern frontier line from Arta to Volo, a distance of 137 miles, laid down by the Commissioners for fixing the boundaries.* This, combined with the admirable travels in Northern Greece, by Colonel Leake, just published, has done much towards removing our ignorance of this highly interesting country.

Turkey.—The southern shores of Turkey in Europe have been recently surveyed by Captain Copeland, R. N., who, commencing at the Island of Cerigo, has carried the examination round to the entrance of the Dardanelles ; he has also determined the height of many of the principal mountains, as Olympus, Ossa, Pelion, Athos,† &c. The charts of this survey are now publishing by the Hydrographic Office, on the scale of 5 miles to an inch. Of the interior of this fine country we know very little, except an account of its statistics and its resources by Mr. Urquhart ; and we have the testimony of the excellent geologist, M. Ami Boué, who has lately examined the structure and direction of the mountain ranges, "that even the best maps of this country are extraordinarily incorrect."‡

Now that there is no difficulty in travelling in Turkey, and that nothing but a little personal discomfort need be feared, it may be hoped some unoccupied tourist may find a more worthy subject than to record the whimsical adventures of a voyage down the Danube, and may be induced to visit a part of Europe where there are yet discoveries to be made ; namely, sources of rivers, mountain-ranges, extensive plains, &c., as indicated by M. Boué, and of which we know nothing.

Archipelago.—Many of the Greek and Turkish islands have been accurately examined during the late survey, which from the Dardanelles has extended along the shores of Asia Minor to Ephesus—charts of which, with the islands of Lemnos, Samothraki, Samos, &c., are completed, though not yet published. In Candia, the ancient Crete, we have the recent travels by Mr. Pashley, in which the author, besides illustrating with great learning the classical and antiquarian interest

* See Memoir by Colonel Baker, in Journal R. G. S., vol. vii. p. 76.

† See Journal R. G. S., vol. vii. p. 61.

‡ See Bulletin de la Société de Géographie, Oct. 1836.

of his subject, has obtained much useful statistical information respecting the present state and capabilities of this beautiful island.

Russia.—The new map of this vast empire, in 59 sheets, by the Depôt-topographique, on the scale of $\frac{1}{420000}$, comprises part of the information collected by Herr Adolph Erman, in his important journey from St. Petersburg to Moskow, and by Kazan and Perm, across the Ural Mountains to Tobolsk, and along the Obi to Obdorsk. The first volume of the personal narrative of this journey is filled with geographical details on this little known country, as far as the mouth of the river Obi; also with information regarding the mines in the Ural, the hydrography of the Wolga, &c. &c.

A paper "On the Varieties of Climate and Productions in the Russian Empire," published in the Agricultural Gazette, at St. Petersburg, and translated into the Quarterly Journal of Agriculture,* contains an able summary of this subject, and much useful information.

The results of a chronometric expedition round the Baltic, by the Russian General Schubert, in 1833, have been published during the past year, and kindly transmitted to the Geographical Society by M. Kupffer.† They give the relative position of seventy-seven important points.

Traversing 900 miles of latitude, we reach the spot on the shores of the Black Sea, where the new series of observations is to commence, to determine the difference of level between it and the Caspian. The direction of this undertaking is confided to Messrs. G. Fuss, Sabler, and Savitch; and the line selected is from Novo Tcherkask, near the mouth of the river Don, to Stavropol, and thence to Kisliar on the Caspian, a distance in a direct line of about 390 geographical miles, on a general bearing of north-west and south-east. Thus there is every probability of the long contested question in physical geography of the depression of the Caspian Sea being finally set at rest.

Caucasia.—On the Caucasian provinces, especially interesting at this day, we have a notice in the work of M. Charles Belanger's "Voyages aux Ides Orientales," &c.; also in M. de Marigny's "Three Voyages," and Herr Nordmann's scientific tour in the Black Sea. The Academy has also published during the last year M. Kupffer's observations during his travels in the Caucasus, and the continuation of

* See Quarterly Journal, No. 32.

† See Journal R. G. S., vol. vi. p. 413.

the work of Marshal Biobertein on the flora of that country: and the Academy of St. Petersburg has instructed M. Sjægren to proceed to Caucasia, in order to make himself acquainted with the language and customs of the Ossetes, one of the six classes of the nations now inhabiting the Caucasian provinces.

From Berlin we learn that M. Dubois has submitted to the Geographical Society there the maps and drawings made by him during some years' residence in the Caucasus; and Herr E. Eichwald, at Stuttgard, has also lately published the account of his journeys to Caucasia and to the Caspian sea.

ASIA.

A glance at the map of this vast country will show at once that here is ample field for geographical discovery. From the icy ocean to the equator—from Syria to Japan, every journey of any extent must be over ground with which we are but imperfectly acquainted,—and this very ignorance should be an additional stimulus to prosecute research to every European whose lot may be cast in this portion of the globe.

In briefly recapitulating the principal works which have contributed to the improvement of the geography of Asia, we would first point attention to the admirable work "Erdkunde von Asien," by Professor Ritter at Berlin, which has now reached the second part of the third volume, and thus completes the description of Hindustan and of eastern Asia; and, secondly, to the Atlas von Asien, by Dr. H. Berghaus, in which, besides the maps of the countries, he has discussed all the elements employed in their construction. The past year has produced six new maps, namely, Syria, Arabia, and Egypt, Assam, and the Chinese coast.

Siberia.—Commencing to the north, we must again take up the route of Herr Adolph Erman from the Ural, thence by Tobolsk, along the river Obi, to Obdorsk, near the Arctic Circle: returning to Tobolsk, he proceeded to Irkutzk, and visited Kiakhta and the country south of the Baikal Lake, then to Yakuzk, and across the Aldan Mountains to Okotzk, thence by sea to Kamskatka, and to the island of Sitka. The results of this journey, parts of which only are yet published, are highly important to physical geography. During the same period, Captain Lutké, commanding the Séniavine, had examined the coasts of Kamskatka to the north of Avatchka Bay, and several islands in Behring's Sea. Baron Wrangel, too, lately returned to Europe from his

command at Sitka, has doubtless brought home some geographical information from that distant quarter, which, it is hoped, may be made public; all we know is, that he has proved the non-existence of some of the pretended discoveries by the American whalers, and has fixed the position of some points in the Aleutian Isles. From the introduction to Captain Lutké's voyage, we learn that during the last twenty years not less than twelve Russian ships of war have made voyages round the world, two only of which have been published previous to the present, namely, Bellingshausen, in 1819-21, and Kotzebue, in 1823-26.

The result of the levelling by Mr. George Fuss, along the shores of the Lake Baikal, has been published in the Memoirs of the Academy of Sciences at St. Petersburg.

Japan.—Dr. Ph. von Siebold's Archief, &c., or Description of Japan, being the results of six years' residence there, from 1824 to 1830, has reached the seventh number. In the mean time, we have Herinneringen uit Japan, by Heer Heindrick Doeff, published at Haarlem,—the only remains of a long residence in that empire, the fruits of which were lost by shipwreck.

Central Asia.—The map of Central Asia, in four sheets, on the scale of nearly two inches to a degree, by Klaproth, has, since the death of that eminent orientalist at Paris, remained unpublished. It is compiled from the great Chinese map and other sources, and contains *some* of the author's own routes in Central Asia.

The Asiatic Society of Bengal has printed a memoir on Chinese Tartary, and on Khoten by Mr. Wathen; and a geographical and political notice on Iskardoh in little Tibet, compiled by Captain Wade, from information obtained from an envoy of Achmed Schah.

The interesting journey in India of M. Jacquemont has reached its eighteenth number; and we may shortly expect the travels of Moorcroft and Trebeck, with a map, combining all the latest information from the most authentic sources.

Kashmir.—Baron Hügel, just returned to Europe, after an absence of six years in the east, has supplied a valuable notice on the present state of the Valley of Kashmir, and a more correct map of the Punjab, and the various passes through the Himalaya Mountains than we before possessed.* We look with interest for the remainder of

* See Journal R. G. S., p. 343.

his travels, which, from the specimen kindly given to the Geographical Society, must contain valuable information.

China.—Of this country, to which it is so difficult to obtain access, we have a general description, as also of its inhabitants, by Mr. Davis, many years a resident at Canton, and well acquainted with the language and literature of the Celestial Empire.

It is probable that we must look to our missionaries for a better knowledge of this country. The patient perseverance, combined with the truly Christian zeal with which they pursue their high calling, may eventually open a way into an empire, that seems shut to any other attempts.

It is from the journal of a missionary, M. Bruguiére, appointed chief of the Roman Catholic mission in Corea, that we have the latest accounts of China and Chinese Tartary. From Macao, M. Bruguiére went to Fougan, to Nanking, passed the Great Wall into Tartary, and resided some time at Sivang; thence he reached the frontiers of Corea, where he fell a victim to fatigue and privation.*

Malacca.—A slight notice of a part of this peninsula has been communicated to the Asiatic Society of Bengal by Lieut. Newbold, chiefly concerning the political relations of the native states.

Borneo.—Of this little-known island an interesting paper will be found in the Journal of the Asiatic Society of London, by Mr. G. W. Earl, who has also given an account of his voyages in the Asiatic Archipelago, in a volume just published. We have, too, the results of Heer Oliver's Voyages to the Moluccas, and to Makassar in the Celebes, in 1824, lately published at Rotterdam. At Paris, also, M. de Rienzi is publishing an account of some years spent in these Eastern Seas.

New Guinea.—At the south-western extremity of this island the Dutch have proved that Cape Walsh is situated on an island, about eighty miles broad; thus one atom of information is added to the balance against our great ignorance of even the shores of this vast island.

India.—Returning westward, we come to the British possessions in India; and here, at least, we are upon known ground. The mea-

* See Annales de la Propagation de la Foi, No. 50.

surement of the great meridional arc, resting upon eight bases, and extending from Cape Comorin, in the parallel of 8°, to the foot of the Himalaya, in 30° north latitude, a distance of 1320 geographical miles, has, during the last year, been brought to a close. This arc has been connected by lateral series of triangles with Calcutta, Bombay, Madras, and Benares: the whole of the tract south of the river Khrishnah, in the parallel of 16° nearly, with the exception of Dindigul and part of Nellore, has been accurately surveyed: north of that line, to the borders of Hindustan, only Kandeish and part of the Hydrabad territory are still to be examined. Many of the maps of this survey, on the scale of 4 inches to a mile, are already published, and the rest are in course of publication. This work does honour to the enlightened views of the East India Company, who instituted it, and to the zeal and energy of their officers who have carried it into execution.

Sind.—Of Sind we have a notice by Captain A. Burnes, who has again recently left Bombay on a mission to Cabul; and we have a good earnest in what he has already done that he will lose no opportunity of acquiring further information.

Arabia.—The shores of the Persian Gulf have been already surveyed, and, with the excellent charts of the Red Sea just completed by the officers of the East India Company's service, have made us fully acquainted with the east and west coasts of Arabia; from the Straits of Bab el Mandel, to the eastward of Makullah, the southern shore has also been surveyed. Of the interior Lieutenant Wellsted, of the Indian Navy, has given us some account;—first, in a journey from the south coast to some remarkable ruins, about seventy miles in the interior of the eastern part of Yemen; secondly, by a very important journey of seven hundred miles in the interior of the province of 'Oman, under the dominion of the Imam of Muskat.*

Berghaus, also, has published a map of Arabia during the past year.

Euphrates.—This river has been explored (thanks to the liberality of the British government), and the practicability of its navigation, with proper vessels, from Bir to the Persian Gulf—a distance, including its windings, of nearly 1000 miles—has been fully demonstrated by

* See Journal of the Royal Geographical Society, vol. vii., part 1.

the zeal, and energy, and perseverance of Colonel Chesney, who, in spite of obstacles of no ordinary character, has accomplished his difficult task. The geographical information obtained, which must be very important, has not yet been made public.

On a neighbouring river, the Tigris, we have the accurate observations of the lamented Mr. Rich, (too early taken away from his sphere of usefulness); also an account of his journey into Kurdistan, his residence at Baghdad, and on the site of the ancient Nineveh; which have been made public during the past year.

Syria.—Here we must again cite Berghaus' map, as the best we have yet seen of this country.* Mr. Barker has contributed an account of a journey to the source of the river Orontes, and of the passage of Lebanon; and we hear that a spirited young Irishman, Mr. George Moore, instead of loitering in fashionable pilgrimage along the beaten paths of Palestine, has actually devoted the past year to a minute geographic examination of the Dead Sea and its shores.

We hope the time is come that some geographer will take in hand a map of this region, profiting by the data that would be willingly supplied by the numerous travellers that have journeyed over every part of both Syria and Palestine, and endeavour to complete a map worthy of a country which must ever possess a higher interest than any other on the surface of the globe.

Asia Minor.—Still proceeding westward, we come to the journeys of MM. Callier and Texier, in Asia Minor, of both of which we have yet only very brief accounts. Our own countrymen, Mr. Brant, in 1835, and more lately Mr. W. I. Hamilton, in 1836, have given us routes throughout Anatolia and Armenia, from the shores of the Mediterranean to the frontier of Persia. The former has contributed a new route by the Russian frontier; the latter several routes, over less frequented parts of the country, throughout which he has paid great attention to its geology and its physical geography.

The survey of the western shore of Anatolia, to unite with that of Karamania, by Captain Beaufort, is now in progress, under the direction of Lieut. Graves, R. N., and will thus complete the coast-line of the more western portion of Asia.

* We had hoped ere this to have profited by the observations of M. Callier, who three years since travelled through this country, but they seem not to have been yet made public.

AFRICA.

Northern Africa.—In this wide field for discovery accurate geographical investigation has advanced but a little way beyond the coasts within the last year; and it is to be feared that the recent calamitous death of our countryman,—a loss which we, in common with every admirer of enterprise, deplore,—may tend to check its progress for sometime to come. Young, zealous, and enthusiastic in the cause of discovery, the traveller had surmounted all the difficulties opposed to his advance in Marocco, in Sús, in Wadi Nún, and had even traversed half the desert towards Tumbúktú, when he was barbarously murdered by the faithless Arabs: and the name of Davidson must now be recorded with those of Hornemann, Park, Ledyard, Burckhardt, Laing, and Lander, as some of the most eminent among our countrymen who have sacrificed their lives in the cause of African discovery.

Should the traveller's papers be recovered, we may expect to find in them a detailed account of the country round Wadi Nún, and observations calculated to determine the western route from Marocco to Tumbúktú more accurately than has hitherto been done. All that we now know of his routes is gathered from his letters to H. R. H. the Duke of Sussex, and to his family, which have been promptly communicated to the Geographical Society, and will be found in the seventh volume of its Journal.

Abú Bekr, the companion of Mr. Davidson, who is supposed to have continued his journey to Tumbúktú, has been sent for by the sheikh of Wadi Nún, and if he escape the perils of the deserts, will probably return to England. He is quite capable of giving an instructive and accurate account of the country through which he passes; his retentive memory and his honesty meriting the utmost confidence. It may be here observed that Abú Bekr's description of the route from Jennè to Cape Coast, collected with great care by Mr. Renouard, and inserted in the sixth volume of the Journal of the Royal Geographical Society, deserves much attention, as it points out a short road to the interior which had never yet been thought of, and which, so long as we possess the friendship of the King of Ashanti, seems to offer considerable advantages.

In continuation of the former labours of Captains Belcher and Skyring, R. N., Lieutenant Arlett has surveyed and laid down, on the scale of an inch to a mile, the western coast of Africa, from Cape Spartel to Cape Bajador; has measured the height of many of the mountains of the lesser Atlas, and has expunged from our charts of

these shores many imaginary dangers. He commenced a survey of the Canary Islands, which that able and experienced officer, Captain Vidal, will complete in the intervals afforded him by the Harmattan season, which periodically interrupts his trying and exhausting, but highly important labours along the Gold Coast from Cape Palmas to Corrisco.

Algiers.—For the improvement of the geography of Algiers we naturally look to France, and a map of the territory comprehended within the French military operations is said to be now in a forward state. The surveys of the Bays of Algiers and Bona have been completed; also the coast-line, from the former to the frontier of Marocco, under MM. Berard and Dortet de Tessan, and published at the Depôt de la Marine. The continuation of the survey as far as Cape Spartel is about to be executed.

Tunis and Tripoli.—No positive accessions to topography have been made here; but we may notice the maps of these countries, published by the Society for the Diffusion of Useful Knowledge, as the most correct in point of orthography of any hitherto issued.

But we cannot quit the subject of Northern Africa without bearing testimony to the value of a work, bearing the unpretending title of 'Etudes de Geographie Critique sur une partie de l'Afrique Septentrionale,' by M. D'Avezac, late Secretary-General to the Geographical Society of Paris, accompanied by a newly-constructed framework of a map, in which the author has laid down the various itineraries furnished by different travellers, and discussed their merits;—a good example in critical geography, which we would gladly see followed for other parts of the world.* M. D'Avezac has also published an 'Esquisse de l'Afrique,'—a programme only, we believe, to a larger work on that country.

Egypt.—We still look anxiously for the map of this country by Mr. Wilkinson, in addition to his splendid work on the topography of Thebes. Of the manners and customs of the modern Egyptians, we

* In a brief notice of this work, in Volume vi. of the Journal of the Royal Geographical Society, it was mentioned in a note that there appeared some omissions and inaccuracies in the map which accompanies it. The author has since, in a letter evincing great knowledge of the geography of Northern Africa, shown that he was fully borne out by the authorities he had consulted in compiling his map. Whether fresh information procured from travellers may confirm these authorities remains to be proved.

have a graphic description from the pen of Mr. Lane, and from M. Jomard, a 'Coup d'œil impartial sur l'état présent de l'Egypte, &c.' The charts of the Red Sea, from a survey made by the officers of the Indian navy, constitute a valuable addition to our knowledge of the eastern side of the African Continent. They have pointed out exactly the ruins of Berenice, and done much towards proving the general accuracy of Bruce's positions: on both these subjects Lieut. Wellsted, of the Indian navy, has contributed an interesting paper to the Journal of the Geographical Society.

Abyssinia.—Dr. Rüppel has returned to Europe, and we may shortly expect the results of his late journeys in this country. In the meantime, two French travellers, MM. Tamisier and Combes, have returned to Marseille, after having penetrated, it is said, as far south as Shoa, in 10° north latitude, some distance to the southward of the extreme point reached by M. Caillaud. Unfortunately these travellers were unprovided with instruments, and little can therefore be expected from the narrative of their travels, besides the description of the half-civilized tribes with whom they had intercourse. Among these were the Boren, Galla, and some Mohammedan tribes of the same nation, who stopped the progress of the travellers, and having plundered them, compelled them to retrace their steps.

The survey of the north-eastern extreme of Africa is still carrying forward to Cape Gardafui by the officers of the Indian navy, who have also completed an examination of the Island of Socotra, of which a detailed description has been communicated to the Society by Lieutenant Wellsted, one of the officers employed.

Western Africa.—Traversing, in imagination only, the whole breadth of the continent, in this parallel, we reach the Bight of Benin, where the survey of the Gold Coast, before alluded to, is now carrying on.

At length we have the gratification to announce the publication of Captain Allen's excellent chart of the Quorra, that river which, under the name of Nigir, has excited so much interest, given birth to so much learned speculation, and cost this country so many lives. The chart extends upwards from the sea about four hundred miles, to the large town of Rabbà, marking the depth of water and the features of the banks, and containing a very picturesque view of the point where the Tchadda pours in its collateral stream. One of the Liverpool steamers

which so generously conveyed Captain Allen up the river, in order to examine it, has remained at Fernando Po, and in her Mr. Becroft has again ascended the Quorra, and also the old Calabar river of our maps, which he believes to be a branch of the deltoidal mouth of the Quorra. This seems to require confirmation.

South Africa.—Here the spirit of exploration has been latterly very active. The roving habits acquired by the boors near the Karroo, the commercial relations of the colony with the nations of the interior, and the nature of the country, all tend to throw the enterprise of the colonists into a channel favourable to geographical discovery. Dr. Andrew Smith, the leader of the expedition which left Cape Town on discovery two years since, has recently arrived in London, bringing with him a large collection in various departments of natural history. He has visited the sources of the Caledon and the Maputa ; has ascended the heights of the Caffrarian Mountains, and advanced as far as the southern tropic in the tracks of the traders. As yet, however, there is but little known of the geographical results of his journey, which cannot fail to be highly important, as his party was well provided with instruments. In the spring of last year two traders from the colony, Messrs. Mehem and Jones, reached Delagoa Bay with loaded waggons, being the first to beat a path which we dare say will soon be much frequented. Captain Gardner, while seeking a pass practicable for waggons through the Quathlamba Mountains from Natal to the Orange River, arrived within a few miles of the sources of this great stream. It is to be lamented that his hasty search proved unsuccessful. The country round and immediately north of the sources of the Orange River has been narrowly examined by the French Protestant Missionaries.

On the western coast the Wesleyan Missionaries have resumed their labours in Great Namaqua ; and it is to them that we must look for a better knowledge of the natives, and for the spread of civilization and Christianity, the most worthy object of geographical discovery.

In this direction also Captain Alexander departed in September last from Cape Town, on his way to the Dàmaras country and to Walvisch Bay, which he hoped to reach by last March. His route has been by Clan William, and the Kamiesberg, across the Orange River ; and by the latest accounts, dated January 1, 1837, he was at Africaaner's Kraal, in latitude 28° south, longitude about 19° east. All his party well, and only waiting for a few showers of rain to continue his journey to the northward.

Mozambique.—M. Xavier Botelho, many years resident in the Portuguese possessions on this coast, has lately published a statistical notice of its establishments ; for an account of which the Edinburgh Review for November last may be consulted with advantage.

Madagascar.—Of this important island we are still very ignorant ; nor could any information be gleaned from the natives who have lately passed some weeks in England ; yet that four out of six spoke and wrote English with facility, is a testimony to the labours of the Missionaries in this country. We hope ere long to have a full account of a residence of some years in the capital, Thanaan-arrive, from a Missionary who is intimately acquainted with the language, and has taken a leading part in communicating to the natives, as far as practicable, some of the blessings of civilization.

AMERICA.

North America.—Traversing the Atlantic to the shores of America, we naturally follow the course of our gallant countryman Back, in his former voyage, from the wide expanse of the great Slave Lake, for 600 miles down the river which now most appropriately bears his name, to the shores of the Arctic Ocean, and there watch him carefully collecting evidences in the set of the current—the direction of the ice—and the character of the drift wood—for the great probability of a water communication in or about the parallels of 69° or 70°. In order to supply the few remaining links in the chain of discovery which the efforts of Parry, Franklin, Beechey, and the Rosses had thrown round the northern coast of America, his Majesty's government, approving of the recommendation of the Geographical Society, again dispatched Captain Back, in his Majesty's ship Terror, in June last, for Repulse Bay, or Wager Inlet—thence to cross the supposed isthmus which separates the two seas, and to continue along-shore to the westward, in his boats ; and thus, we confidently trust, by determining the northern limits and configuration of the American Continent, to complete the stupendous discoveries of the great Columbus.

Further to the westward the Hudson's Bay Company, in pursuing their avocations over an unknown country, are annually making fresh discoveries ; and at this moment some of their servants are exploring a track from the Great Slave Lake to Port Turnagain, with the hope of

tracing the 220 miles of coast that are yet unknown between that point and Captain James Ross's farthest.

Greenland.—Captain James Ross, R. N., in his recent voyage in search of the missing whalers, has obtained some new information relative to the west coast; and the translation of Graah's Voyage to Greenland, just published by the Geographical Society, will enable the English reader to judge of the probabilities that may yet remain of discovering the supposed lost colonies on the east coast of Greenland.

Canada.—An arduous survey of the great river St. Lawrence, by Captain Bayfield, R. N., under the direction of the Hydrographic Office, has for several years been in progress; and so valuable are his charts acknowledged to be, that the pilots of Quebec petitioned government for their immediate publication. They are now published, on the scale of an inch to a mile, for the upper part of the river—for the lower part, the scale is an inch to two miles and a half. To navigators frequenting the St. Lawrence these charts will prove an invaluable boon.

United States.—A large map of the United States, in twenty-four sheets, on the scale of twelve inches to a degree, compiled from general surveys by Mr. D. H. Burr, topographer to the Congress, is now engraving in London, by Mr. John Arrowsmith, and will shortly be in course of publication in the United States; but preparations have been long in progress for an elaborate triangulation of the whole union—instruments of the most refined construction have been gradually provided—and a short trial, comprising about eighty miles along the coast, has been already made under the directions of Mr. Hassler, whose well known talents as a mathematician and an observer give more than promise that this splendid undertaking will equal anything yet executed in the old continent. How singular that a country which has made such gigantic strides in arts and in science, in such a short period, should not yet have established a National Observatory! But Congress, we learn with much satisfaction, are now about to wipe away this just reproach; and we can also congratulate the scientific world on the steps which our own government is now taking to erect an observatory at Toronto, the capital of Upper Canada.

Mexico.—The great interest attached to the extraordinary remains discovered in this country have lately elicited two memoirs on the sub-

ject; one from the pen of Captain Vetch, R. E., who spent many years there—the other by Dr. Von Martius, inserted in the Transactions of the Academy of Sciences at Munich: the latter seems to be of opinion that a nation of Toltecs never existed, but that it was a name applied to the Astecs, who erected the pyramids of Cholula, &c., Toltec, Dr. Von Martius says, signifying 'builder.'

Herr Carl Nebel, of Hamburg, has just completed the twelve Numbers, containing his voyage to Mexico, beautifully illustrated; and now that there is no longer any difficulty in travelling there it may be hoped that some of our many wandering countrymen will turn their steps to Mexico, where are yet many discoveries to be made, and particularly with regard to that interesting subject, the migration of nations,—and thus complete the work that Humboldt has so well begun.

Central America.—The eastern shores of this country have just been accurately surveyed by Captain Owen, R. N. Commencing at Cape Catoche, the north-eastern point of Yucatan, the survey has been continued down the coast of Honduras, and along the Poyais shore, to Cape Gracias a Dios, and from thence to the southward as far as the Rio San Juan. But Captain Owen's skill and resources have not been confined to that shore;—they have new-modelled the charts of that most intricate group, the Bahama Isles; he has corrected numerous errors in those of Jamaica, Haiti, and Cuba, and after minutely examining the bank of Demerara, he surveyed that river for 200 miles from its mouth. On the western shores a survey is carrying on under Captain Belcher, R. N., whose present ground is between the Gulfs of Panama and California; but he will ultimately unite the surveys of Captain Fitz Roy to the discoveries of Vancouver and Beechey; and thus will the British government present to the mariner and geographer the noble gift of a correct and uniform representation of the whole western coast of America from Cape Horn to Behring's Straits, comprising a space of upwards of 9000 miles. Of the interior we have some routes of travellers, &c.; and a general memoir on the country, by Colonel Galindo, will be found in the Royal Geographical Society's Journal, vol. vi.

The ruins of the nameless city, or cities, near Palenque, as also of Itzalan, have been beautifully drawn by Mr. Waldeck, and are now, we are informed, in course of publication at Paris.

West Indies.—The survey of this archipelago of islands, cays, and shoals, is continued under the direction of the Hydrographic Office, and

executed by Lieutenant Barnet, R. N., whose indefatigable labours on the vast and dangerous cays near the Mosquito Coast have entitled him to the gratitude of every West Indian navigator. Much useful information will also be found in Sir Andrew Halliday's lately published work on the natural and physical history of these islands.

South America.—Before proceeding further with a country that recalls to us at every step that excellent traveller Baron Humboldt, we must notice his valuable work entitled "Examen Critique de la Géographie du nouveau Continent, aux 15me et 16me siécles,"—in which the author thoroughly examines all the claims of pretenders to the discovery of the new world—points out when the name of America was first applied to it—and fully exposes the absurdity of the pretensions, by means of which the prenomen of Vespucius has become unalterably affixed to the largest portion of the globe.

Brazil.—Nor would it be right to omit the excellent collection of *Noticias para a Historia e Geografia das Nações Ultramarinas,* throwing much light on the early voyages of the enterprizing Portuguese navigators, which are publishing by the Academy of Sciences at Lisbon, and are ably illustrated with notes by the Senhor de Macedo.

Guayana.—Commencing on the northern coast, the river Essequibo and its tributaries have been traced by Mr. Schomburg, under the direction of the Geographical Society, to within two degrees and a half of the Equator—he has fixed many positions on it astronomically—obtained much information respecting the natives—and made a valuable collection in natural history. In October last Mr. Schomburg ascended the river Courantine as far as 4° 16′ north latitude, where a series of cataracts obliged him to return; the river was there 900 yards wide, and its level 530 feet above that of the sea. Mr. Schomburg, by the last accounts, on Dec. 1, had begun to ascend the river Berbice, with the hope of reaching the line of separation of waters between the Amazons and the Essequibo.

In French Guyane MM. Bauve and Leprieur have explored the river Oyapok, and part of the Marony—some of the details of which will be found in the *Bulletin de la Société de Géographie.*

Amazons.—This mighty river has been explored by two British officers, Messrs. Smith and Lowe, who have shown that an easy navi-

gable passage exists from the town of Pozuzu on the Pachitea, within 300 miles of Lima, by the rivers Ucayali and the Amazons to the Atlantic Ocean; a fact which may prove of incalculable importance to the rising states of Bolivia and Peru.

Peru.—General Miller has accomplished a journey of 150 miles both to the northward and eastward of Cuzco, and has thrown much light on the hydrography of that part of the country in tracing the course of a river supposed to be one of the largest tributaries of the great river Purus, if not the river itself.

Rio de la Plata.—An important addition to our knowledge of this country has just been made by Don Pedro de Angelis, at Buenos Ayres in a '*Coleccion du Documentos,*' &c., relative to the History of the Rio de la Plata; being a collection of original documents, some of especial value to the topographer, as, for instance, the journal of Don Luis de la Cruz, who in 1806 crossed the Andes and the Pampas, to establish a road from Concepcion in Chile to Buenos Ayres. The work is enriched with valuable notes by the editor; and it is highly gratifying to find the members of a new republic profiting by the first moment of political tranquillity to collect and publish the original papers connected with the history of their country.

Another original document on this part of South America, namely, the 'Diary of Don Basilio Villarino,' who explored the Rio Negro, in 1782, from the Atlantic to the foot of the Andes, has been communicated to the Geographical Society by Sir Woodbine Parish.

M. Alcide d'Orbigny's beautiful work on the Natural History of the Republic of La Plata, and the Banda Oriental, is publishing at Paris, and has reached its twelfth number; and Dr. Rengger's 'Reise nach Paraguay,' just published at Aarau, gives us the results of eight years' residence in that country.

Patagonia.—Proceeding southwards along the shores of this vast continent, we now come to the account of an expedition just completed, which has brought home a greater mass of accurate geographical information than any expedition since the voyages of Cook and of Flinders; namely, the survey of the coasts of Patagonia, Terra del Fuego, Chile, and Peru, by Captain Fitz Roy, R. N. in His Majesty's Ship Beagle. Beginning with the southern bank of the wide Rio de la Plæta, every mile of the coast thence to Cape Horn was closely surveyed and laid down on a large scale; each harbour and anchorage was planned; thirty

miles of the Rio Negro, and two hundred of the Santa Cruz, up to the foot of the Andes, were examined and laid down, and a chart was made of the Falkland Islands. To the westward of Cape Horn, from the parallel of 47° south to the river of Guayaquil, only 3° south of the Equator, the whole coasts of Chile and Peru have been surveyed; nor has any port or roadstead been omitted. Of the Chonos Archipelago no chart existed. Of Chiloe the best Spanish charts were twenty-five miles in error in latitude. Among numerous other heights measured, the Volcano of Aconcagua was proved to be 23,300 feet above the sea; thus taking rank as third in height in the Cordilleras of the Andes. A detailed description of the great earthquake at Concepcion in 1835; a valuable collection in all departments of natural history, by Mr. Darwin; together with sixty charts, on the scale of twelve inches to a degree, and one-hundred plans, and innumerable views, besides meteorologic journals and tide registers, which are now lodged in the Hydrographic Office, attest the indefatigable zeal with which this service was conducted.* Quitting the coasts of south America, the Galapagos Islands, the dangerous Archipelago, and the Keeling Islands were examined, and a chronometric chain of measurement by twenty-two time-keepers, for the first time, has been carried, from east to west, round the globe.

A summary of this voyage, giving all the most important positions obtained, and the chief practical results, has been published in the Journal of the Geographical Society, while the more detailed narrative of its various incidents is preparing to meet the eagerness which the public always feel in a series of operations so wisely planned and so ably conducted.

It were hardly necessary to add, that the Royal Premium "for the encouragement of geographical science and discovery," has been awarded to Captain Fitz-Roy, R. N., as commander of this expedition.

AUSTRALIA.

New South Wales.—The exploring party under Major Mitchell, Surveyor-General of this Colony, returned to Sydney at the commencement of the past year, having traced the river Darling (discovered by Sturt in 1828) to latitude 32° 30′ S., longitude 142° 30′ east of Greenwich. In March, 1836, Major Mitchell again started on discovery,

* It is right to mention that this service was most materially assisted by the influential exertions of Mr. Wilson, British Consul-General at Lima, and by the liberal and active co-operation of Don Eduardo Carrasco, hydrographer in Peru.

and within these few days we have learnt that he has succeeded in tracing the Darling into the Murray; has crossed to the southward, and struck the coast near Portland Bay, in 141½° east longitude, about 150 miles to the westward of Port Phillip, where the party had received supplies from the whalers, and were to return by land to Sydney, a distance, in a direct line, of 600 miles. The details of this expedition have not yet reached England.

Another journey, by Mr. Hamilton Hume, already well known as having been the first to strike out a route from Sydney to Port Phillip in 1824, has been effected from Sydney to the south-eastern extreme of Australia at Cape Howe, and thence to Wilson's Promontory at its southern point. The details are not yet known.

South Australia.—The colony recently established in Spencer's Gulf has sent home a cheering account of its prospects, and of the quality of the land.

Western Australia.—From the colony at Swan River, the Surveyor-General has lately penetrated upwards of 150 miles east, and then eighty miles to the northward, but the results are not known. A road has been traced to the settlement at King George's Sound, and is said to pass through a fine country.

North-Western Australia.—Nothing has hitherto been done on this perhaps the most promising spot for discovery in the continent of Australia; but the expedition shortly about to leave England for Swan River will doubtless be enabled to throw more or less light on some of the great geographical problems which attract attention to this remarkable country.

The nautical part under the command of Captain Wickham, R. N., will probably proceed at once to Dampier's Archipelago, and prosecute examination in that quarter before proceeding to the survey of Torres Straits. In the mean time, two young officers of His Majesty's army, Lieutenant Grey, 83d regiment, and Lieutenant Lushington, 9th regiment, volunteers in the cause of discovery, will be landed with their party at Swan River, and there make arrangements, guided by the best local information, for prosecuting researches in the quarter which it is considered most probable may lead to important geographical discoveries.

Pacific Ocean.—This, as has been well remarked, is the domain of

Vice Admiral Krusenstern; and he is entitled to the thanks of all navigators for the care with which he registers every new islet discovered in this vast Archipelago. We learn on the authority of our most recent circumnavigators that Krusenstern's charts are the only guides in these seas, and we cordially join with the Admiral in his Indroduction to his last Supplement, in which he points out the heavy responsibility which map-makers incur in republishing charts full of inaccuracies, when the means for improving them to a great extent are quite within their reach.

The omission of any notice of what has been done towards the geographical distribution of man, animals, and plants;—of all works on ethnography, or the classification of mankind according to languages, religions, &c., on meteorology, and other important branches of strict geographical inquiry, will strike the most cursory reader of this sketch, but time would not allow of touching on the subject.

Having briefly mentioned what has been done, we cannot deny ourselves the pleasure of noticing the expeditions from other countries now in progress:—

Captain Laplace, well known for his *Voyage autour du Monde* in *La Favorite*, in 1830-32, has again sailed on board L'Arthémise, on another voyage round the world.

At the same time, Captain Du Petit Thouars has sailed in *La Venus*, but in a contrary direction, also on a voyage round the globe.

Captain Dumont d'Urville, companion of Duperrè, and commander of the *Astrolabe* in her circumnavigation of the globe in 1826-29, is shortly to sail from Toulon, to endeavour to follow the track of Weddell, into the Antarctic Ocean—thence to visit the Polynesian Islands, where he will doubtless obtain much additional information to that he has already given us respecting the natives and languages of this interesting portion of the globe.

From the United States of America an expedition, consisting of five vessels, some fitted for exploring the Frozen Ocean, and provided with the best instruments that the various capitals of Europe could supply, is shortly to sail on a voyage, from which we may confidently expect some important results.

We cannot conclude this imperfect and hasty sketch of the Progress of Geography without recording our testimony to the value of the labours of sister associations,—of the Geographical Society of Berlin, directed by the able and zealous geographer Professor Ritter, which has just held its fourth anniversary,—of M. Vander-Maelen, whose esta-

blishment at Brussels is in itself a society,—and especially of the Geographical Society of Paris, now in the fifteenth year of its existence. Besides its monthly bulletins, it has completed five volumes of a Recueil de Mémoires, some of them of great interest; and particularly that on the Orographie de l'Europe. The two last contain the relation of Rubruquis, and the Geography of Edrisi, translated by M. A. Jaubert. The work of Abū-l-feda is soon to follow.

Neither can we omit to mention the liberality with which during each of the three past years this Society has awarded a medal for discovery to three of our countrymen—Burnes, Ross, and Back. May the mutual correspondence of the several Societies, and the exchange of information, stimulate each other to press forward in the cause of geography! and we hail the foundation of a Geographical Society at Frankfort-on-the-Main (the news of which has only this day reached us), headed by the names of Kriegk and of Meidinger, as an earnest that many valuable labourers are about to take a share in promoting the object for which we are instituted—the advancement of geographical science and discovery.—*Journal of the Royal Geographical Society, Vol. 7, pp.* 172—195.

3.—*Remarks by* DR. GRAHAM, *Professor of Botany in the University of Edinburgh, on the paper by* DR. WIGHT, *on the tree which produces the Gamboge of Commerce, continued in the* 13*th No. of the Madras Journal.*

The botany of Southern India is in excellent keeping. The zeal of Colonel and Mrs. Walker is unwearied, and their exertions are bringing to our knowledge a host of new and interesting plants. The enthusiasm of my excellent friend Dr. Wight is not second to theirs, and, fortunately for the science, in pursuit of which he makes extraordinary efforts, the field of his operations is much more extended. Every thing which he writes will and ought to be received by botanists with deference; and therefore I am anxious to correct one or two misconceptions into which, from the position in which he is, he has very naturally fallen. His knowledge of my opinions was, at the time he wrote these observations, derived solely from a letter which I had written to him, before I was myself acquainted with all the arguments upon which my opinion might be supported. If he had read the more detailed account which I was, subsequently, able to publish in the

Companion to the Botanical Magazine, vol. ii. p. 193, I feel certain that his observations would not have appeared in their present shape.

The points stated to be at issue between my friend and me, are these :—1st, He does not think me right in considering the tree of which Mrs. Walker sent me specimens and drawings, as the only one that produces gamboge fit to be used in the arts. 2d, He does not think Mrs. Walker's plant the one which produces the true Ceylon gamboge. 3d, He thinks the facts adduced by me are not sufficient to invalidate his and Dr. Arnott's position, that the *Xanthochymus ovalifolius* is the only *indigenous* plant in Ceylon that produces gamboge fit to be used in the arts. 4th, That the tree from which my specimens were procured, is in Ceylon of exotic origin. Now, my friend will find, that, even in my letter to him, correctly, I am sure, quoted by him, I never said that my plant was the *only one that produces gamboge fit to be used in the arts ;* and in my subsequent paper in the Companion to the Botanical Magazine, I expressly guard against that supposition, thinking it very probable that there may be others. I only say that this plant does yield gamboge fit to be used in the arts, and that I had received perfectly good gamboge taken from it. We do differ on the second point, and my opinion rests on the authority of Mrs. Walker ;—the authority of the mutilated trees which she saw ;—the authority of the Ceylon Doctor which she quotes, as shewn in my extracts from her letters, published in the Companion to the Botanical Magazine ;—the authority of the gamboge which she sent to me from these trees, which proved to be excellent gamboge, chemically, medicinally, and as a pigment. With regard to the third point, there is a mistake, as Dr. Wight will immediately see upon reflection. I did not attempt to invalidate his and Dr. Arnott's position that the *Xanthochymus ovalifolius* is the only *indigenous* plant in Ceylon that produces gamboge fit to be used in the arts, because they took no such position ; but in the quotation which Dr. Wight himself makes from their excellent Flora, they give it as their opinion that it is the *only plant* in Ceylon that does so ; and this opinion I shewed to be an error, by proving that another plant does. I can go farther now, however, than I could do when I wrote Dr. Wight, and say, that *Xanthochymus ovalifolius* yields a juice which is not, chemically, medicinally, nor as a pigment, good gamboge. As to the 4th point on which Dr. Wight thinks we differ, namely, as to whether my plant be a native of Ceylon, he will find that I never have asserted that it is, because in this country I can be no judge, and I have no direct information upon the subject. Though, therefore, I have no interest in this question in support of any thing I have written, I may

add, that Dr. Wight thinks that if my plant shall prove to be the *Mangostana Morella* of Gærtner, it will go far to establish the fact of its being a native of Ceylon. Now, my opinion as to the identity of these plants is founded upon the excellent figure of the fruit by Gærtner, and a careful examination of synonyms by authors who were in situations which enabled them to judge. With respect to the fact of the plant being a native of Ceylon or not, however, I long since wrote to Dr. Wight, requesting he would make inquiry, and knowing his activity, and confident in his accuracy and judgment, I shall at once adopt the opinion which he shall form after inquiry. I shall be surprised if he finds it as scarce as he states it to be, in his observations in the Madras Journal; because Mrs. Walker informs me, that, after knowing it in one situation, she passed through "a forest" of it in another. This expression, however, may not have been intended to be understood literally, and the two situations, for any thing I know to the contrary, may not be far distant. No man is more able to inquire into this than Dr. Wight, and therefore I am confident we shall know the fact before long*. Borneo, Singapoor, and Rangoon, all yield gamboge, and so do probably many other places in the east, as well as Siam. Let us hope that we shall soon get information as to the plant in each which affords it. Mr. Malcolmson has obligingly lately given me a specimen, unfortunately only in leaf, from Rangoon, which he found to contain a purgative, yellow gamboge-like juice in its fruit. It is certainly different from my Ceylon specimens.

When Dr. Wight's observations in the Madras Journal were written, he had not heard the discovery which Mr. Brown's inquiries, kindly undertaken at my request, had led to,—that the specimen from which Murray's description of *Stalagmitis gambogioides* was taken, is a compound, the flowers of *Xanthochymus* being stuck by sealing-wax upon a branch of what seems my Ceylon plant. The knowledge of this circumstance would have probably modified the observations in the latter part of Dr. Wight's paper.—*Edinburgh New Philosophical Journal, No.* 47, *October* 1837—*January* 1838, *pp.* 109—111.

The foregoing remarks were written in June last, with a view to their insertion in the then forthcoming Number of this Journal. I am glad that there has not been room for them in an earlier Number than the present, because I have since received additional, and what seems satisfactory information regarding the claim of *Hebradendron gambogioides* to be considered a native of Ceylon. In a letter which

* See additional information on this subject in Scientific Intelligence, Botany.

I have from Mrs. Walker, dated 1st and 2d May 1837, she mentions a tour she had made through different parts of the island, and adds, "we found the Ceylon gamboge-tree several times in forests distant from the habitation of man, which proves the tree to be indigenous." She afterwards adds, however, "The tree does not abound much." In my account of this tree, in the Companion to the Botanical Magazine, I could only describe the male flower and the fruit, and I stated that Mrs. Walker's account seemed to shew that the plant was monœcious. I had no specimen of female blossom. I have now the satisfaction of adding, that Mrs. Walker, in her last letter, assures me she has ascertained the tree to be diœcious, that the infloresence of the female tree is similar to that of the male, the flower white and a little larger, and she has most kindly sent me a sketch of this, which presents a germen precisely in miniature of the fruit, and surrounded (like it) with several (ten ?) abortive stamens, which seem united at the base.—*Ibid.*—*pp.* 229—230.

4.—*An account of the Boring Operations carrying on in Fort William at Calcutta.*

[The results of these operations being in every way so remarkable, we have extracted from the Journal of the *Asiatic Society of Bengal*, the following scattered notices of its progress.—*Ed. Madras Jour.*]

Note on the Progress of the Boring in Fort William.—By Captain Taylor, m. a. s.

July 6, 1836.—In laying before the Society the accompanying section* and specimens of the strata found in the recent operations carried on in Fort William for the discovery of a spring of pure water, it may be expected that I should give some account of the progress and state of the experiments; I therefore beg to offer the following observations.

A detail of the early part of these operations, which commenced in October last, would comprise little besides a narrative of difficulties barren of facts scientifically interesting. It will be sufficient briefly to state, that in the first attempt a depth of 136 feet only was attained by boring; when the same quicksand which in every case seems to

* We postpone this until the operations, hitherto so successful, may have been brought to a close.—Editor *Bengal Journal.*

have baffled General Garstin's efforts to proceed, put an end to this also. The tubes, without support in the loose sand, separated in several places, and fell out of the perpendicular; all attempts to rejoin or recover them failed.

As the same strata, and consequently in so much as that is concerned, the same difficulties might be expected to occur in boring in any part of the alluvial formation of the delta of the Ganges, it was not supposed that any material advantage would be gained by changing the site of operations; it was resolved to proceed with a second attempt in the immediate vicinity of that where we had just failed.

On the 28th of April another shaft was commenced; experience had suggested several improvements in the arrangement of the machinery, and taught us to use the tools with better effect. The improved skill of the workmen was made manifest by the fact, that the depth of 126 feet, which in the first attempt occupied forty-seven working days to attain, was now reached in eighteen with ease and facility.

So far the strata passed through, corresponded precisely, in their order at least, with all that had occurred on former occasions. The same quicksand which caused the abandonment of the first attempt was reached at 120 feet; and at this point our difficulties commenced. To obviate the disaster which had rendered our labour abortive in the first instance, the tubes were secured against dislocation in the loose sand by screws at their joints; and to this precaution must be attributed the success of the work so far. The sand alluded to is of so loose, I may say, semi-fluid a character, that on the removal of a portion of the water which stands in the tube to fifteen feet from the surface, it immediately rose seventeen feet; and although at this time the work was prosecuted night and day without any intermission, the sand rose faster in the tubes than it could be removed; so that at the end of eleven days and nights of incessant toil it had risen from 124 to 103 feet.

Hence it became evident that the only mode of overcoming the obstacles presented by the sand was to force the tubing down, until coming in contact with some firm stratum, the sand should be excluded. By unrelaxing perseverance and much labour, frequently gaining but a few inches in the day, the tubes at last attained a depth of 157 feet. The sand was gained upon; at 152 feet it was observed to become darker in colour and coarser in grain, containing a quantity of what appeared to be small pieces of iron ore.* At 159 feet a stiff clay with

* Red waterworm nodules of hydrated oxide, like the laterite of South India.—Ed.

yellow veins occurred, resembling in appearance a thin stratum passed at 127 feet. The borer, which during the prevalence of the sand was always behind the tubing, sometime several feet, now penetrated in advance of it, and in less than 24 hours reached the depth of 175 feet.

The clay at 163 feet changed, for a short space, remarkably in colour and substance; becoming dark, friable, and apparently containing much vegetable and possibly some ferruginous matter. At 170 feet it became sandy, and gradually passed into a very coarse sharp sand mixed with small fragments of quartz and felspar, which was brought up from 175 feet.

This gravel or shingle at present impedes further progress, until we shall have made some auger capable of penetrating and lifting the stones.

Report Progress of the Boring Experiment in Fort William.—
By Major T. M. Taylor, *5th Cavalry.*

April 5, 1837.—The immediate superintendence of the boring experiment having, in consequence of my removal from Fort William, passed into other hands, I think it necessary to acquaint the Society with the progress that has been made since I had the honour to submit to them a note on the subject in June last.

At that time a depth of 175 feet had been attained by the borer, which then worked in a coarse sharp sand mixed with pieces of quartz and felspar, and from the little progress made, it was supposed a bed of gravel or shingle had been reached. This supposition, however, proved erroneous; for after some delay the work advanced, until, the borer having gained 178¼ feet, and the tubes being forced down to 180½ feet, they were observed soon after to have sunk by their own weight, and thence forward up to the present time they have continued so to sink, maintaining a depth generally a few feet in advance of the auger.

It is remarkable that, although it was frequently tried, it was seldom found practicable to *force* the tubes down more than an inch or two at a time; yet, shortly after the removal of the pressure, amounting, possibly, to twenty tons, they would sometimes descend six inches or even a foot by their own gravity.

With a trifling variation in the colour and fineness of the sand the stratum remained the same, until clay was found at 198¾ feet, but this

stratum was not more than five feet in thickness; five feet of sand then occurred, and after it another layer of clay. At 212 feet a bed of sand was entered, which has been penetrated to a depth of 131 feet, without reaching its termination.

Long ere this the work would have been carried to the utmost depth for which tubing of the diameter in use has been provided, had it not been for two accidents, each of which was of so serious a character as threatened to put a final stop to the work. The first was occasioned by the separation of a part of the borer containing a valve, when at the bottom of the well; and the second by the auger becoming jammed with a brazen plumb which had been lost in the bore sometime before, in such a way that the application of no force that the rods could sustain sufficed to move the implement in *any* direction. The force that was applied may be conceived when it is stated that it was sufficient to raise the whole line of tubing bodily in the bore.

Keeping the tubes in position, the rods, by the application of a screw, were at length forcibly torn from the auger a little below the screw which joined them; after which, as in the former case, the valve worm auger was broken off by the jumper, and the instrument brought up by the catching in the socket.

The success in overcoming these disasters must be mainly attributed to the zeal and perseverance of the sappers employed on the work: in the latter, however, they were guided by the able instructions of Captain J. Thomson, who suggested the measures to be adopted, and supplied from his own stores some of the machinery to carry them into effect.*

When my superintendence ceased (10th March), the tubes had sunk to the depth of 343 feet, and the borer penetrated to 336 feet. The sand still continued to rise in the manner described in my former paper. It varies occasionally in colour and substance, and latterly some pieces of felspar and lumps of indurated clay or sand have been picked out of the sand brought up.

The supply of English tubing of the requisite character is very nearly exhausted, but an attempt will be made to cast some in Calcutta: if it fails, the experiment must necessarily be suspended until an indent that has been sent home be answered.

* To guard as far as possible against breaking the rods by the force applied to extract them, Captain T. connected his screw with the rod-head, through the intervention of a rod of somewhat smaller section which would consequently give way before any injury could happen to the borer.—Ed.

Note by James Prinsep, Esq. *Secretary.*

As a postscript to the above report, I have now to announce a most curious and unexpected discovery, communicated to me this very morning by Colonel MacLeod, the Engineer officer, who has succeeded to the charge of the experiment hitherto so successfully conducted by Major Taylor.

On a former occasion the Society was shewn metallic iron reduced from ore extracted from a depth of 150 feet, and sharp angular quartz and felspar from 175 feet;—but here is something which will excite much more surprise, a fossil bone *brought up by the auger from a depth of* 350 *feet below the surface of Calcutta.*

When it is considered how many million chances there were against an auger only a few inches in diameter, impinging upon the precise spot where a bone lay in the understratum,—the risk, too, of such a fragile object being ground to atoms by the tool, or pushed aside, and missed,—it may be regarded as the most extraordinary good fortune that the relic should not only have been met with but brought up entangled in the valve of the scoop without the slightest injury! The bone is the fractured lower half of a humerus of some small animal like a dog: it resembles the drawing of the corresponding bone of the hyena in Cuvier, but it is impossible precisely to identify it for want of skeletons for comparison.

The interior is filled with the micaceous sand in which it was imbedded, and scales of the same adhere to the exterior surface. The bone is not thoroughly fossilized, for when heated by the blow-pipe it becomes slightly charred and emits a perceptible odour:—but the animal matter left is exceedingly small, and the whole loss on heating a portion to a white heat was only 7 per cent., the greater part being moisture from the hydrate of iron with which it is impregnated. The greater part of the phosphate of lime remains with a proportion of carbonate: the specific gravity is 2.63, just the same as that of a fine specimen of polished ferruginous *odontolite* from the *Himalaya:* it requires the heat of an oxygen blow-pipe to fuse a fragment *per se* on platina foil.

Of the relative age of this deposit, compared with that of the *Sewalik* and *Nerbudda* fossils, it is impossible to form any exact conclusions, but it is worth while to recapitulate briefly the conditions under which each are found.

The continuous stratum of lower sand in which our bone was buried at a depth of a hundred and fifty feet, may be regarded as the gradual

deposit at the mouth of a primeval river : the excess of mica contained in it would seem to indicate its derivation from a gneiss or schistose source, such, indeed, as the present *Himalayan* or *Vindyan* range might still furnish. It was evidently anterior to the general and extensive alluvial deposits of the yellow *kankary* clay which entirely cover, or rather form, the Gangetic plain, and which the auger in Fort William had passed through before it attained the depth of hundred feet. Now the fossil bones of the *Jamna* were also found under the *kankar* clays of the *Doab*, 150 feet below the surface, so that in this respect the situation of the two is similar enough. The calcarious infiltration which has consolidated the sand and gravel of the *Sewalik* and *Nerbudda* matrix has been wanting here, and perhaps from its greater distance from the hills alone, the sand here is in a much more comminuted state :—geologically speaking, however, the whole of the fossils may belong to the same period of alluvial deposit—or, in other words, to an indefinitely distant epoch of the present system of quiescent operations in land and flood, whose gradual action has subsequently accumulated the superjacent beds of clay, abounding in minute fresh-water shells, extending for thousands of square miles—and again over them towards the delta of the *Ganges*, other more recent and extensive beds of blue clays, coloured with vegetable debris and containing imbedded peat and wood, by which they are identified with the existing soil of the *Sundarban* forests. The mind is lost in contemplating the immense periods which such a deposit would demand at the hardly visible rate of present accumulation :—yet there are other causes of wonder in the several beds of coarse granitic angular gravel and nodular or pea iron ore which have been traversed by the auger before reaching the fluviatile sand beneath. These may indicate the volcanic upheavement and subsequently gradual decay of granitic and ferruginous hills, pending the progressive deposit of the alluvium, concerning which, however, we can know nothing certain, and need not therefore lose ourselves in conjectures. In like manner it might be advanced that the whole of the clayey strata were deposited in fresh water as the saliferous sand and sandstone of Upper India has been in salt-water—and that the animals whose exuviæ are now brought to light at so many points, were the inhabitants of the borders of a prodigious bason. In the upper beds of blue clay penetrated in digging tanks and canals, bones have occasionally been met with (see the note on those found at *Dumdum* in vol. ii., page 649), but unfortunately none have been preserved. The occurrence of the remains of quadrupeds at one or two

distant points of the series is sufficient to establish the conclusion that their existence has been coeval with the whole deposit; while the sharp unworn angles of the fort bone prove that the animal to which it belonged had lived and died in the immediate neighbourhood.

Colonel MacLeod's fossil bone, may be designated without hesitation one of the most precious rarities ever deposited in the Museum of the Asiatic Society.

June 1837.—" The chief engineer has the satisfaction of stating that at length a stratum of clay has been reached, at a depth of 380 feet, and that the auger having penetrated 18 inches further has brought up blue clay mixed with a large quantity of apparently decayed wood; the tubes have only gone down 377 feet, but it is hoped that they may be forced down through the remainder of the bed of sand to the clay to-morrow, when by a cessation of the influx of sand the operation will proceed with much more rapidity."

The appearance of the clay is precisely that of the black peat-clay found at the depth of 14 to 20 feet below the surface, and it must be the debris of a similar *Sundarban* tract formed anterior to the deposit of the 380 feet of superincumbent sand and clays. The wood is highly charred, but by no means converted into coal.

August 1837.—Colonel MacLeod, chief engineer forwarded several fragments of *coal* brought up by the borer in the fort from a depth of 392 feet. The depth attained now being 404 feet.

The coal has a specific gravity 1.20 and is of a fine quality, nearly resembling the *Assam* specimens; it is in rolled lumps evidently such as are found in the beds of torrents, and such as have invariably led to the discovery of seams in the vicinity. This will account for no actual beds having been penetrated by the auger: the discovery is very curious, as connected with the subject of Indian coal beds.

November 1837.—The tubes had reached a depth of 450 feet, and had met with some impediment to their further descent; though the sand continued to enter below. A rolled fragment of vesicular basalt had been brought up from this depth.

February 1838.—Two fresh fragments of fossil testudo from the fort boring were presented by Colonel MacLeod, brought up from a a depth of 450 feet.

IX.—Literary and Scientific Intelligence.

We are indebted to Captain O. W. Gray, at present stationed at Hingolee, for information of an interesting discovery of fossil remains near that place. The following account by an officer, whose name we are not at present at liberty to mention, will convey information regarding the locality and mode of discovery.

"During the rainy season of the year 1837, a river or large nullah which runs by the village of Wakoory, 22 miles S. E. from the cantonment of Hingolee, in the territory of H. H. the Soubah of the Deckan, rose to an unprecedented height; the stream left its own bed, and in falling into the Peam* Gunga river, about a mile from Wakoory, washed away a considerable quantity of the black alluvial soil from the right bank, thus exposing the substratum of gravelly calcarious concrete. A considerable quantity of this lower stratum was also cut away, by the force of the water in its fall of about forty feet into the Peam Gunga.

During the process the tusks and bones of a large animal were washed bare, at a depth of from forty to fifty feet, imbedded in gravel cemented by carbonate of lime. The village cow-herds and others, it is said, broke the bones and otherwise destroyed the skeleton before it was known at Hingolee, that such discovery had taken place.

When known, steps were taken to prevent further destruction, and all that appeared have been secured; viz., three pieces of the tusks (there were two tusks distinct, *in situ,* in the calcarious concrete, forty feet below the surface) and one long piece of bone, all the other large bones had disappeared. A mass about five feet long and two feet broad of jumbled bones and concrete remained.

The officers who visited the spot consider that other fossil remains may be looked for, and that those of smaller animals are very abundant. They are not silicified; they have been imbedded in gravel and calcarious breccia—the calcarious concrete is very thick, mixed with rolled pebbles and stones. It is not a partial deposit from fissures, but underlies the whole of the valley of the Peam Gunga, about Wakoory; and there is reason to suppose the same stratum is

* The orthography of this word seems very unsettled, like that of most other names of places in India. It is variously spelt by our Hingolee correspondents, and published maps, *Beam, Peam, Pyne and Pain.*—Editor.

under the alluvial black soil of other valleys in the neighbourhood of Hingolee, such as that in which the Khai river runs near Hingolee—that the countries is similar to that under the black soil in the valleys of the Nerbuddah and Godavery, and abounds in fresh water shells of a larger kind than those observed there."

The author of the above account has most generously, and in the politest manner, proffered to us the fossils thus discovered. They are on their way to Madras, and, in our next number, we hope to be able to give some satisfactory account of them.

The third number of Dr. Wight's *Illustrations of Indian Botany* has just appeared, and the anticipations which we ventured on in our last number have been amply realized. To use the words of a highly honoured correspondent, who, from his great talents and scientific position, may be considered the highest authority in India *in rebus botanicis*,—"Had Dr. Wight never published any thing before, the work now presented to the world would be sure to establish his name in the very first rank among botanists in India, and in a very eminent position among laborious, useful and talented botanists generally. Since the time of Dr. ROXBURGH no one has done any thing equal, in point of real utility and benefit to the science, to what has been achieved by ROYLE ard WIGHT."

We hope to be able to introduce a critical notice of the work hereafter, when sufficient numbers have issued to enable a judgment to be formed of the full scope and character of the work.

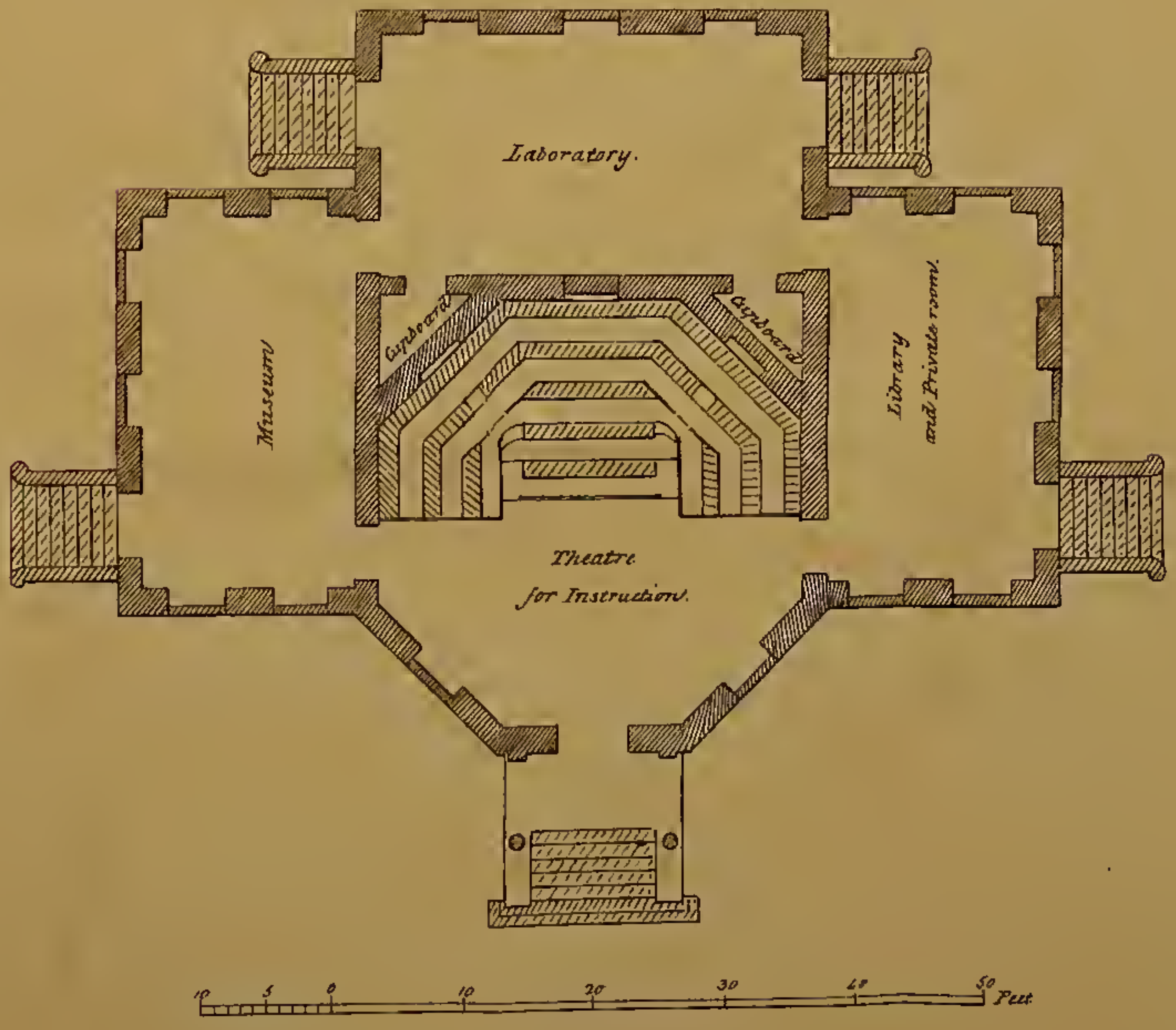
A work is proceeding from Mr. PHAROAH's Press, entitled *An Historical Account of the Castes of the Natives of British India*, by Mr. E. A. RODRIGUES, illustrated by numerous coloured lithographs of costume, &c. &c. which really possesses considerable merit. We refer our readers to the advertisement on the cover.

The plan and elevation of the MADRAS MEDICAL SCHOOL, promised in our last number (page 268), is here given.

Plan and Elevation
of the
MEDICAL SCHOOL.

Elevation.

Plan.



rawn by J Dunphy

Printed by W Winchester

NOTES.

The following, which had accidentally been omitted by the original copyist, was received from Mr. Taylor after his Paper was struck off. It should follow at p. 399, line 19.

This result it must be recollected is derived from the A. R. proper motions alone, because the A. R. Catalogues alone are strictly speaking comparable; if we compute the value of *m* which shall reconcile the P. M. in Declination, a much larger value than that above found will result; but it appears, that the discordances happen to the observations made in the summer (of 10*h*.—14*h*. A. R.), and to those made in the winter (of 22*h*.—2*h*. A. R.); if then with reference to Piazzi's observations—the correction of the mean refraction for temperature which has been employed, should be erroneous to the amount of one second, under these extremes, a complete reconciliation of the P. M. in Declination with that from the A. R. observations will result.

Upon consideration, and in accordance with Lieut. Newbold's expressed opinion, we forbear from publishing the Malayan catalogues of the animal and vegetable productions of that Peninsula—(see p. 75 of No. 18) the specific names of the greater number being unascertained, which would render the list meagre and uninteresting to the scientific reader. We propose to circulate printed copies of the catalogue to our settlements in the Straits, and thus the ends of science may be subserved by Lieut. Newbold's diligent labours, as we may in this manner procure the identification of the various plants and animals named.

X.—METEOROLOGICAL REGISTER, KEPT AT THE MADRAS OBSERVATORY, FOR THE MONTH OF JANUARY, 1838.

Days.	Barometer at 10 A. M.	Barometer at 4 P. M.	Barometer at 10 P. M.	Thermometer at 10 A. M.	Thermometer at 4 P. M.	Thermometer at 10 P. M.	Rain. Sun rise.	Rain. Sun set.	Evaporation.	Direction of Wind. 10 A. M.	Direction of Wind. 4 P. M.	Direction of Wind. 10 P. M.	Weather. 10 A. M.	Weather. 4 P. M.	Weather. 10 P. M.	Remarks.
1838	Inch.	Inch.	Inch.	o	o	o			In.							Continued clear weather throughout the month, light dews in the morning, but no fog as generally occurs.
Jan. 1	30,1 6	—	30,100	75,0	—	71,8	......	......	....	N N W	—	N W	Th.haze	—	Clear.	
2	,136	30,052	,118	75,9	79,0	73,0	......	......	....	N	E	—	Fl. Cl.	Cloudy.	Clear.	
3	,144	,060	,090	77,5	78,3	72,7	......	......	2,204	N E	N N E	N	Haze.	Th.haze	Fl. Cl.	
4	,120	,034	,084	76,0	78,3	73,8	......	......	....	N E	N E	N E	Fl. Cl.	do.	Fl. Cl.	
5	,140	,022	,[illegible]72	76,9	77,8	72,7	......	......	....	N	N E	N	Fl. Cl.	Fl. Cl.	Fl. Cl.	
6	,076	,[illegible]20	,040	75,0	77,0	72,5	......	......	......	N	N E	N	Fl. Cl.	Clear.	Clear.	
7	,095	,019	,062	76,0	77,5	73,4	......	......	......	N	N E	NEbyE	Clear.	Clear.	Clear.	
8	,106	,024	,080	74,8	77,0	7[illegible],8	......	......	......	—	N E	N E	—	Clear.	Clear.	
9	,1[illegible]2	,050	,088	73,9	7[illegible],5	70,3	......	......	......	N	NEbyE	N E	Clear	Clear.	Clear.	
10	,132	,054	,198	73,6	77,0	7[illegible],8	......	......	2,358	N	N E	N E	Clear	Th.haze	Haze.	
11	,136	,050	,112	73,9	77,5	72,3	......	......	......	N W	N E	N E	Clear	Clear.	Clear.	
12	,116	—	,106	74,8	—	74,0	......	......	......	N	—	N	Fl. Cl.	—	Cloudy.	
13	—	30,050	,104	—	77,0	73,5	......	......	....	—	N E	N E	—	Fl. Cl	Haze	
14	30,126	—	,112	74,4	—	74,2	......	......	......	N W	—	N E	Fl. Cl.	—	Cloudy.	
15	,144	30,052	,124	75,2	77,5	73,5	......	......	......	N E	N E	N	Fl. Cl.	Fl. Cl.	Clear.	
16	,172	,062	,148	73,7	77,6	71,5	......	......	......	N	N E	N	Clear.	Clear.	Clear.	
17	,166	,054	,102	74,8	77,5	70,7	......	......	2,368	N	N E	N	Clear.	Clear.	Clear.	
18	,134	,042	,080	74,2	77,5	71,0	......	......	......	N	N N E	N	Clear.	Clear.	Clear.	
19	,160	,090	,144	73,9	77,0	73,9	......	......	......	N	N N E	N	Clear.	Clear.	Clear.	
20	,200	,0[illegible]2	,140	76,3	78,5	75,7	......	......	......	N E	N N E	N	Fl. Cl.	Fl. Cl.	Fl. Cl.	
21	—	,082	,132	—	78,0	73,7	......	......	....	—	N E	N	—	Fl. Cl.	Clear.	
22	30,182	,092	,136	75,3	77,8	74,0	......	......	......	N E	N E	N	Clear.	Clear.	Clear.	
23	,196	,101	,158	75,0	77,0	74,4	......	......	......	N	N N E	N	Fl. Cl.	Fl. Cl.	Fl. Cl.	
24	,182	,108	,168	76,2	78,0	75,7	......	......	2,618	N E	N E	N	Fl. Cl.	Clear.	Cloudy.	
25	,186	—	,18[illegible]	76,3	—	76,4	......	......	......	N E	—	N E	Fl. Cl.	—	Fl. Cl.	
26	,198	30,132	,172	76,5	79,0	75,7	......	......	....	N N E	N N E	N E	Fl. Cl.	Clear.	Clear.	
27	,170	,1[illegible]8	,128	76,9	78,5	74,2	......	......	......	N	N E	N E	Clear.	Fl. Cl.	Clear.	
28	,150	,[illegible]74	,110	76,1	79,0	74,7	......	......	....	N E	N N E	N E	Fl Cl.	Clear.	Clear.	
29	,150	,078	,116	75,7	78,5	74,4	......	......	......	N	N E	N E	Fl. Cl.	Clear.	Clear.	
30	,134	,060	,112	75,9	78,0	74,4	......	......	......	N E	N E	N E	Clear.	Clear.	Clear.	
31	,156	,056	,1[illegible]0	75,7	79,0	75,8	......	......	2,303	N E	N E	N E	Fl. Cl.	Clear.	Fl. Cl.	
Mean	30,147	30,063	30,118	75,4	77,9	73,4										

METEOROLOGICAL REGISTER KEPT AT THE MADRAS OBSERVATORY, FOR THE MONTH OF FEBRUARY 1838.

Days.	Barometer at 10 A. M.	Barometer at 4 P. M.	Barometer at 10 P. M.	Thermometer at 10 A. M.	Thermometer at 4 P. M.	Thermometer at 10 P. M.	Rain. Sun rise.	Rain. Sun set.	Evaporation.	Direction of Wind. 10 A. M.	Direction of Wind. 4 P. M.	Direction of Wind. 10 P. M.	Weather. 10 A. M.	Weather. 4 P. M.	Weather. 10 P. M.	Remarks.
1838	Inch.	Inch.	Inch.	°	°	°	In.	In.	In.							
Feb. 1	30,180	30,090	30,168	76,7	78,8	75,9	...	...	...	N E	N E	N E	Fl. cl.	Fl. cl.	Fl. cl.	Almost uninterruptedly clear; lightning appeared on the evening of the 13th, and accompanied by thunder on the 28th.
2	,200	,102	,174	76,8	78,9	76,1	...	...	...	N E	N E	N E	Fl. cl.	Fl. cl.	Fl. cl.	
3	,156	,040	,120	76,3	78,8	75,9	...	...	...	N	N E	N	Clear	Clear	Clear	
4	,120	,040	,120	77,[illegible]	78,5	75,9	...	...	...	S	E	N E	Clear	Clear	Clear	
5	,138	,050	,130	76,3	78,8	75,3	...	...	...	N E	E	E	Clear	Clear	Clear	
6	,116	,044	,104	76,7	79,[illegible]	74,[illegible]	...	...	...	S E	NEbyE	N E	Clear	Fl. cl.	Fl. cl.	
7	,116	,042	,106	76,4	79,5	74,9	...	...	2,301	N	NEbyE	N E	Fl. cl.	Clear	Fl. cl.	
8	,164	,080	,160	76,7	79,8	76,3	...	...	...	E	E	N E	Fl. cl.	Clear	Fl. cl.	
9	,222	,101	,190	78,0	80,0	77,2	...	...	...	N E	E	N E	Fl. cl.	Clear	Fl. cl.	
10	,182	,092	,178	78,1	80,0	76,9	...	...	...	E	N E	N E	Fl. cl.	Fl. cl.	Fl. cl.	
11	,146	,0[illegible]0	,132	78,5	79.8	77,7	...	...	...	S E	N E	N E	Clear.	Clear	Fl. cl.	
12	,178	,072	,162	78,9	80,8	7[illegible],4	0,427	...	...	E	E	E	Fl. cl	Fl. cl.	Cloudy	
13	,206	,096	,172	79,8	80,5	78,2	0,904	...	...	E	N E	N E	Cloudy	Fl. cl.	Cloudy	
14	,210	,088	,156	80,0	80,8	78,3	...	...	2,382	E	N E	E	Fl. cl.	Clear	Clear	
15	,156	,058	,108	79,8	81,4	78,5	...	...	...	E	N E	E	Clear	Clear	Clear	
16	,150	,030	,078	79,1	81,8	78,2	...	...	...	E	E	E	C ear	Clear	Clear	
17	,106	,022	,058	78,2	81,8	77,9	...	...	...	N W	E	E	Fl. cl.	Clear	Clear	
18	,086	—	,056	78,5	—	77,8	...	...	...	S E	—	E	Clear	—	Clear	
19	,120	30,032	,118	78,4	80.8	78,1	...	...	...	S E	S	E	Fl.cl.	Clear	Clear	
20	,156	,042	,098	79,8	81,4	78,[illegible]	...	...	...	S E	E	—	Fl. cl.	Th.haze	Clear	
21	,120	,022	,064	78,3	81,5	75,9	...	...	2,321	S W	S S E	E	Fl. cl.	Th.haze	Clear	
22	,086	29,980	,[illegible]54	78,3	81,0	77,0	...	...	...	S E	S S E	E	Fl. cl.	Clear	Clear	
23	,050	,966	,[illegible]8	7[illegible],2	81,3	77,9	...	...	...	S E	E S E	E	Clear	Clear	Clear	
24	,032	,958	29,966	79,2	82,0	78,3	...	...	...	S E	S E	S E	Clear	Clear	Clear	
25	,008	—	,984	79,6	—	78,6	...	...	...	S W	—	S E	Clear	—	haze	
26	,024	30,962	30,050	80.7	83,0	79,3	...	...	...	S	S S E	E	Clear	Clear	Clear	
27	,070	,990	,040	8[illegible],5	83,0	78,4	...	...	...	E	E	—	Clear	Th.haze	Fl. cl.	
28	,062	,984	,040	79,4	81,6	79,0	...	...	2,400	N E	NEbyE	N E	Cloudy	Th.haze	Cloudy	
Mean	30,127	30,040	30,100	78,4	80,6	77,3										

METEOROLOGICAL REGISTER KEPT AT THE MADRAS OBSERVATORY, FOR THE MONTH OF MARCH, 1838.

Days.	Barometer at 10 A. M.	Barometer at 4 P. M.	Barometer at 10 P. M.	Thermometer at 10 A. M.	Thermometer at 4 P. M.	Thermometer at 10 P. M.	Rain. Sun rise.	Rain. Sun set.	Evaporation.	Direction of Wind. 10 A. M.	Direction of Wind. 4 P. M.	Direction of Wind. 10 P. M.	Weather. 10 A. M.	Weather. 4 P. M.	Weather. 10 P. M.	Remarks.
1838	Inch.	Inch.	Inch.	°	°	°	In.	In.	In.							
Mar. 1	30,034	29,980	30,046	81,1	81,9	80,7	... ...	... ...	... ...	N E	E	S E	Fl. Cl.	Cloudy	Cloudy	Rainbow to the west th.
2	,088	,964	,058	80,7	82,2	80,0	0,587	... ...	... ...	S E	S E	S E	Fl. Cl.	Fl. Cl.	Fl. Cl.	—— [and ltg.
3	,120	,992	,048	81,8	84,0	80,9	... ...	... ...	... ...	S E	S E	E	Clear	Clear	Clear	Lightning to the N. W.
4	,102	—	,018	82,3	—	81,7	... ...	... ...	... ...	S W	—	S W	Clear	—	Fl. Cl.	Th. and lightning.
5	,068	29,932	,016	83,1	86,0	81,8	... ...	... ...	... ...	—	S S E	S W	—	Clear	Clear	Lightning.
6	,054	,936	,024	83,2	85,6	81,8	... ...	... ...	... ...	S E	S S E	S W	Clear	Clear	Fl. Cl.	Th. and lightning.
7	,062	,944	,034	84,2	85,8	82,3	... ...	... ...	2,441	S	S E	SEbyS	Clear	Clear	Cloudy	Lightning.
8	,080	,958	,036	83,5	86,0	81,7	... ...	... ...	... ...	S	S E	S E	Cloudy	Clear	Fl. Cl.	do.
9	,060	,976	,044	83,8	84,0	80,4	... ...	... ...	... ...	S	S E	S E	Clear	Clear	Clear	do.
10	,094	,982	,080	82,1	84,4	80,7	... ...	... ...	... ...	N E	E	E	Clear	Clear	Fl. Cl.	——
11	,094	— —	,072	83,0	—	80,8	... ...	... ...	... ...	N E	—	E	Fl. Cl.	—	Haze	——
12	,096	29.988	,080	82,3	83,9	80,8	... ...	... ...	... ...	E	E	N E	Fl. Cl.	Fl. Cl.	Fl. Cl.	——
13	,086	,986	,072	82,2	84,0	80,2	... ...	... ...	... ...	N E	N E	N E	Clear	Fl. Cl.	Clear	Lightning.
14	,090	,984	,051	82,0	84,0	80,2	... ...	... ...	2,661	E	NEbyE	N E	Clear	Th. hz.	Fl. Cl.	——
15	,086	,972	,038	82,2	84,5	79,9	... ...	... ...	. . . .	E	NEbyE	N E	Clear	Clear	Clear	——
16	,080	,954	,038	81,3	85,0	79,9	... ...	... ...	. . . .	N E	NNbyE	N E	Clear	Clear	Clear	——
17	,076	,968	,028	82,0	85,7	80,3	... ...	... ...	. . . .	W	E	N E	—	Clear	Clear	——
18	,038	—	,052	82,0	—	80,4	... ...	... ...	. . . .	S W	—	—	Clear	—	Clear	——
19	,064	29,940	,056	82,0	85,0	80,4	... ...	... ...	. . . .	S W	S E	—	Clear	Clear	Clear	—— heavy dew.
20	,074	,946	,030	82,2	84,8	77,8	... ...	... ...	. . . .	—	S E	S E	—	Clear	Clear	—— do.
21	,078	,954	,038	82,0	85,8	79,1	... ...	... ...	2,581	S	SEbyE	S E	Clear	Clear	Clear	do.
22	,076	,964	,032	82,1	85,8	81,4	... ...	... ...	. . . .	S	SEbyE	S E	Clear	Clear	Clear	Dew.
23	,072	,982	,030	83,8	85,7	82,1	... ...	... ...	. . . .	S E	S E	S	Clear	Clear	Clear	do.
24	,092	,976	,048	84,8	88,4	81,7	... ...	... ...	. . . .	S	S E	S E	Clear	Clear	Clear	do.
25	,092	—	,060	83,9	—	81,7	... ...	... ...	. . . .	S W	—	S	Clear	—	Clear	do.
26	,082	29,968	,034	84,0	85,8	80,3	... ...	... ...	. . . .	—	SEbyS	S E	Clear	Clear	Clear	Thick fog.
27	,024	,908	29,990	84,0	86,0	78,3	... ...	... ...	. . . .	S	S	S E	Clear	Clear	Clear	Heavy dew.
28	,036	,934	,992	82,4	85,4	80,4	... ...	... ...	2,581	S	S E	S E	Clear	Clear	Clear	do.
29	,040	,924	30,006	81,3	86,2	81,8	... ...	... ...	. . . .	S W	S E	S	Clear	Clear	Clear	do.
30	,056	,952	,036	84,4	87,5	82,0	... ...	... ...	. . . .	S	S E	S E	Clear	Clear	Clear	do.
31	,072	,968	,038	85,2	86,4	82,3	... ...	... ...	. . . .	S E	NEbyE	N E	Clear	Clear	Clear	——
Mean	30,073	29,960	30,039	82,9	85,3	80,8										

The Instrument with which the foregoing Observations are made, are placed in the Western verandah of the Honourable Company's Observatory, at about 5 feet above the surface of the ground, and 27 feet above the level of the Sea; the Thermometer was made on purpose for the Observatory, and at 75° (the only point at which a comparison has been made) it was found to differ insensibly from the Royal Society's Standard;—the Barometer is one of two Standards which I have lately constructed, and may be depended upon to 0,01 of an inch.

Longitude............5*h.* 21*m.* 8*s.* E.
Latitude...............13° 4′ 8″,5 N.

MADRAS OBSERVATORY, 1*st* *April* 1838.

T. G. TAYLOR,
H. C. Astronomer.